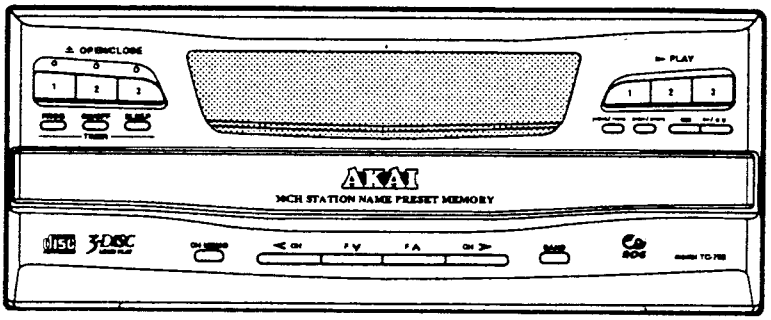
AKAI SERVICE MANUAL



COMPACT disc DIGITAL AUDIO

MINI STEREO COMPONENT SYSTEM

TUNER · CD PLAYER

TC-700/703R

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[TC-700/TC-703R]

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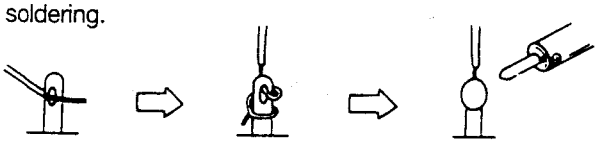
SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts indentified by the ⚠ (*)symbol parts are critical for safety. Replace them only with parts whose numbers are specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples:RF converters, tuner units, antenna selection switches, RF cables, noise-blocking capacitors, noise-blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulating Tape
   2) PVC tubing
   3) Spacers(insulating barriers)
   4) Insulating sheets for transistors
   5) Plastic screws for fixing micro switches
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Make sure that wires do not contact heat generating parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).
7. Check if replaced wires do not contact sharply edged or pointed parts.
8. Also check areas surrounding repaired parts.
9. Make sure that foreign objects (screws, solder droplets, etc,) do not remain inside the set.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can. Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

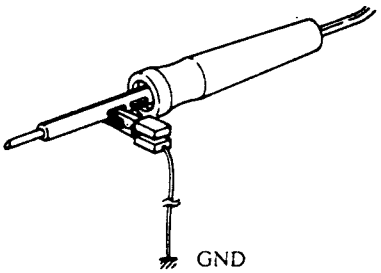
SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to check if exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resister of 1500 ohms paralleled with a 0.15μF capacitor, under the unit's normal working condition.
The leakage-current should be less than 0.5mA rms AC.
The resistance measurement should be done between accesible exposed metal parts and power cord plug prongs with the power switch "ON"(if included). The resistance should be more than 2.2Mohms.

PRECAUTIONS IN REPAIRING

When repairing or adjusting the unit, please note the following points.

1. Do not put excessive pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
2. When the base is removed for repair or adjustment, make sure that there are no metal objects between the P.C board or the mecha parts and the base.
3. The Micro-Computer and the CD signal processing ICs may be damaged by static electricity or leakage from a soldering iron during repairing. While soldering, please take the precautions against leakage as in the illustration.

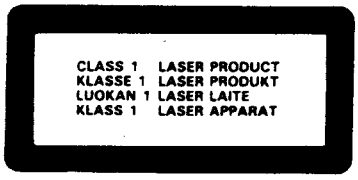


4. Do not loosen any screws in the pick-up block.
   Please refer to NOTE when replacing the pick up block.
5. To avoid hazardous invisible Laser Radiation, DO NOT look at the Laser Beam (Objective lens) directly.
6. On models for some countries, laser warning labels are affixed on and inside of the unit, as shown below. For your safety, read these labels carefully before repairing or adjusting the unit.

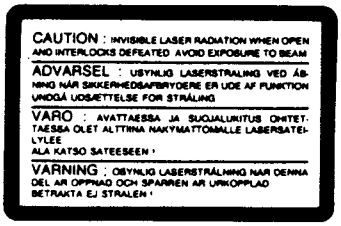
CAUTION

The use of controls or adjustments or the performance of procedures other than those specified herein may result in hazardous radiation.

[EUROPE, SCANDINAVIA, UK and AUSTRALIA]



Label affixed on the rear panel of the unit


CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED AVOID EXPOSURE TO BEAM
ADVARSEL : USYNLIG LASERSTRALING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING
VARO : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NAKYMATTOMALLE LASERSATEILYLEE
ALA KATSO SATEESEEN
VARNING : OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD BETRAKTA EJ STRÅLEN

Label affixed on the CD MECHA chassis

INFORMATIONS

SYMBOLS FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

Symbol	Prinncipal Destination
A	USA
B	UK
E	Europe(except, UK)
S	Australia
V	Germany
U	Universal
Y*	Custom version

SPECIFICATIONS

[TUNER Section]

Frequency Range

FM ..... 87.5-108MHz(50KHz step) [E/B/J version]
(100KHz step) [C/A version]
(50/100KHz step) [U_5/U_8/Y_6 version]

MW ..... 531-1602KHz(9KHz step) [E/B/S/U/Y_7 version]
530-1710KHz(10KHz step) [U/C/A version]

LW ..... 144-288KHz(1KHz step) [E/B only]

Sensitivity

FM ..... 2.6μV (IHF, THD 3%) [except E version]
4μV (IHF, THD 3%) [E version]

MW ..... 1800μV (IHF, THD 10%)

LW ..... 3000μV (IHF, THD 10%)

S/N Ratio

FM ..... 60dB(IHF) STEREO 60dBμV INPUT (except TC-703R)
50dB(IHF) STEREO (TC-703R)

MW ..... more than 27dB (SSG : 74dBμ)

LW ..... more than 25dB (SSG : 74dBμ)

Total Harmonic Distortion(at 1KHz)

FM ..... less than 1.5% STEREO (SSG : 60dBμ)

MW ..... less than 2.5% STEREO (SSG : 74dBμ)

LW ..... less than 3.5% STEREO (SSG : 74dBμ)

Stereo Separation ..... more than 30dB(IHF) (SSG : 60dBμ)

NOTE:

- FM 75KHz Deviation (TC-700)
  40KHz Deviation (TC-703R)
- Measurement Point : AX-700/AX-705K VCR out (load 22K Ω Terminate Resistor)

[CD Section]

AUDIO CHARACTERISTICS

Frequency Response ..... 20Hz~20KHz(±2.0dB)
Harmonic Distortion ..... 1KHz lesws than 0.07% (20KHz LPF ON)
10KHz less than 0.07% (20KHz LPF ON)
Signal To Ratio ..... more than 80dB (20KHz LPF ON, IHF ON)
Wow and Flutter ..... Below measurable limits
Channel Separation ..... 1KHz more than 65dB (20KHz LPF ON) TRACK 32, 38
10KHz more than 65dB (20KHz LPF ON) TRACK 34, 40

NOTE:

• TEST CD is TCD-781

DIGITAL SIGNAL PROCESSING

Optical Pickup ..... 3-beam laser
Interruption ..... There are no Continuous Noise to 800μm (Track 4)
Block Dots ..... There are no Continuous Noise to 800μm (Track 9)
Finger Print ..... There are no Continuous Noise to 650μm (Track 13)

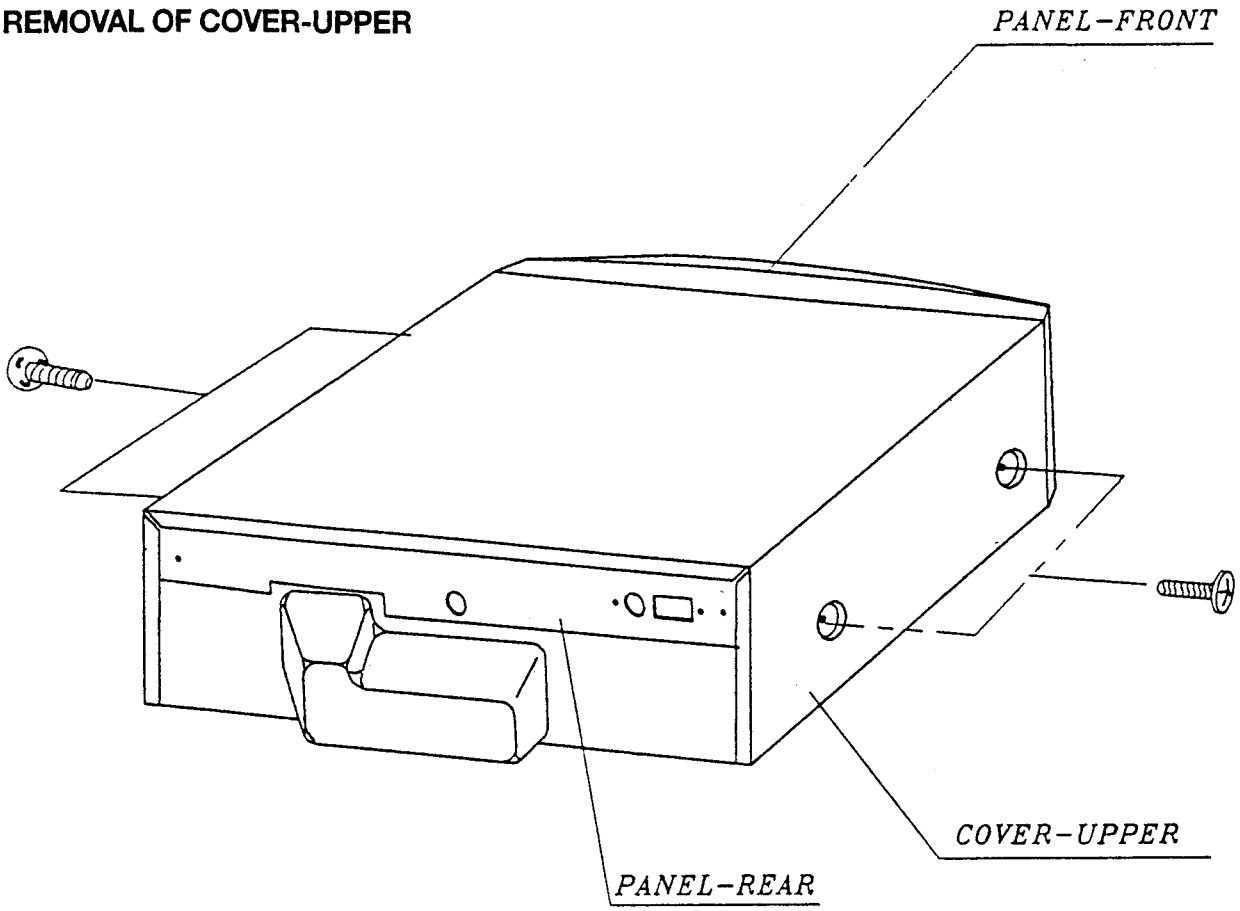
NOTE:

• TEST CD is TCD-725(A-BEX)

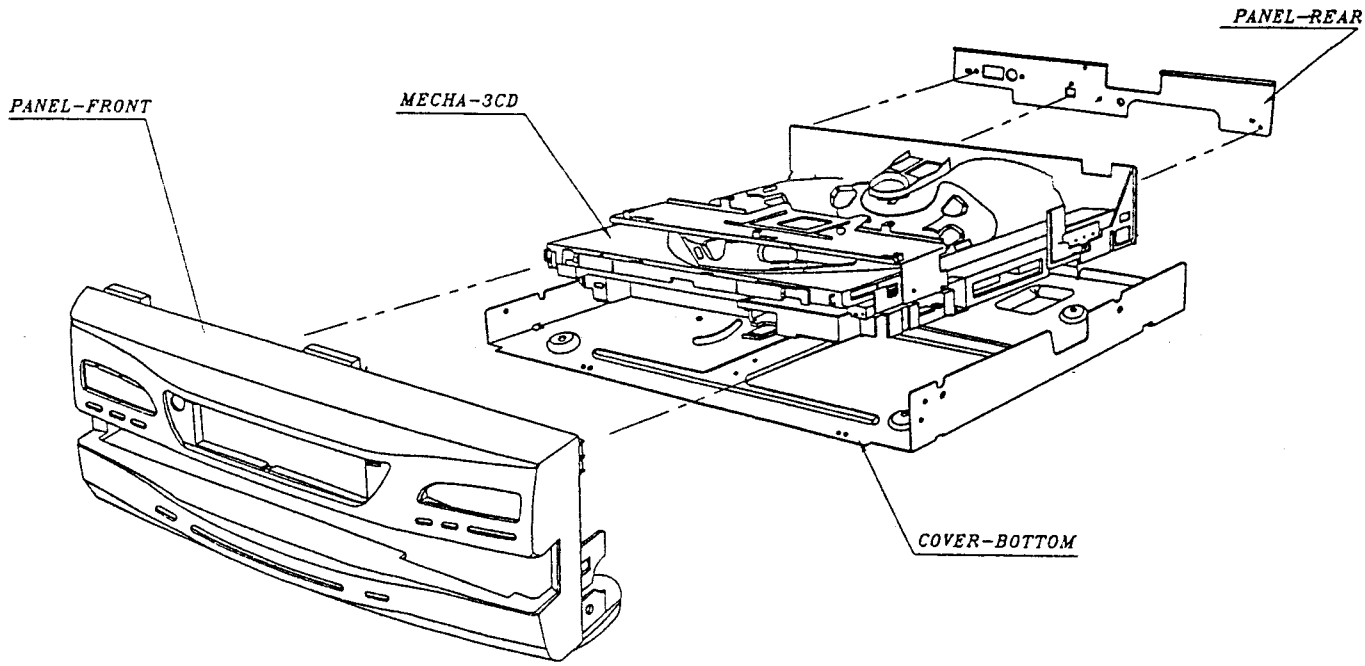
Dimensions ..... 270(W) × 112(H) × 330(D)mm
Weight 3.0Kg

I. DISASSEMBLY

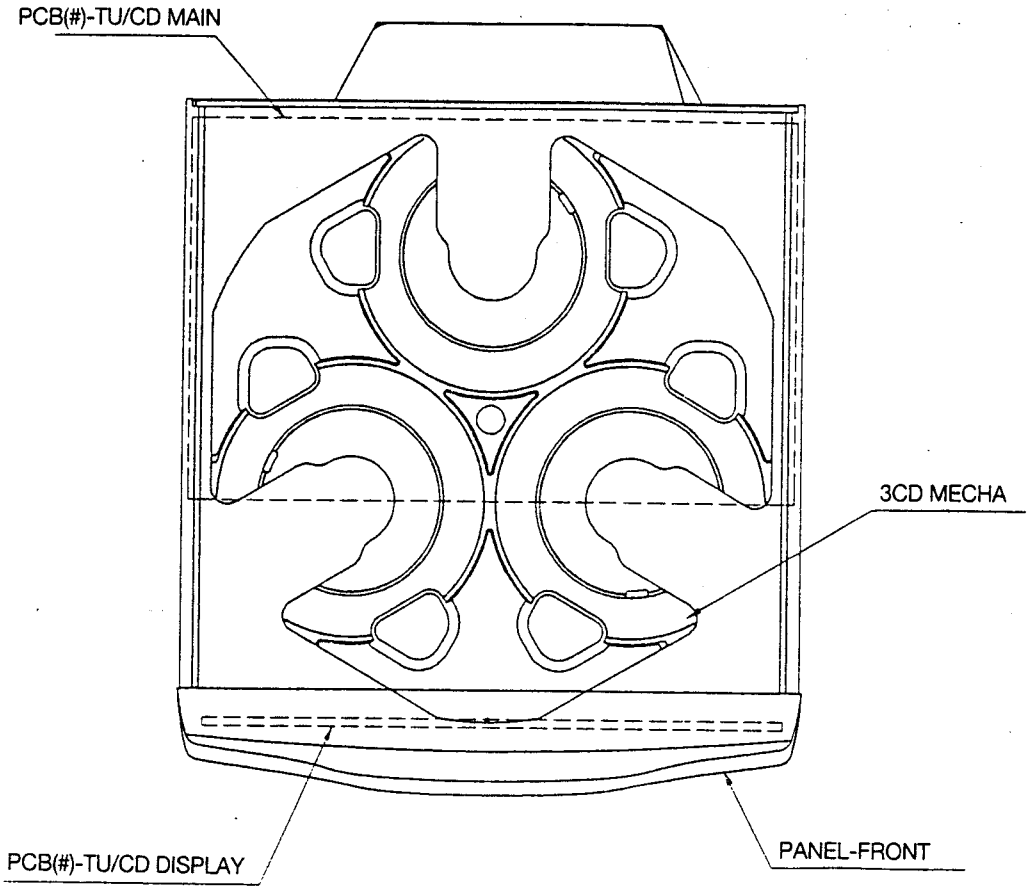
1. REMOVAL OF COVER-UPPER



2. REMOVAL OF CD MECHA



II. PRINCIPAL PARTS LOCATIONS

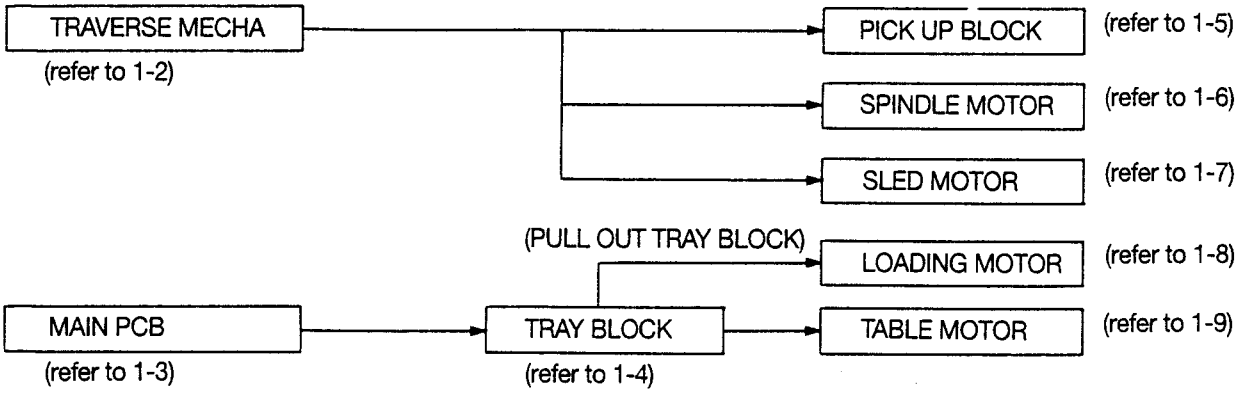


III. REPLACEMENT OF PRINCIPAL MECHANICAL PARTS

1. CDP MECHANISM

1-1. DISMANTLING PROCEDURE OF THE COMPONENTS

When replacement of the mechanical parts is necessary, replace them using the following procedure.



1-2. REMOVAL OF THE TRAVERSE MECHA

1) Disconnect the three connectors carefully (two connectors are on the PICK UP PCB and the other is on the MOTOR PCB of the TRAVERSE MECHA.).
2) Remove the four retaining screws, then remove the PICK UP UNIT.

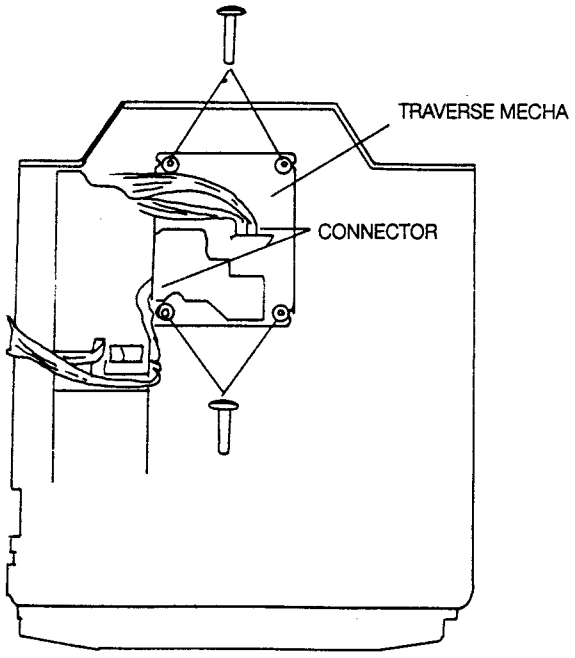


Fig. 1-2

1-3. REMOVAL OF THE TU-CD PCB

1) Disconnect the connectors on the TU-CD PCB.
2) Remove the four retaining screws Ⓐ on the TU-CD PCB and the four screws Ⓑ on the rear panel, then remove the TU-CD PCB.

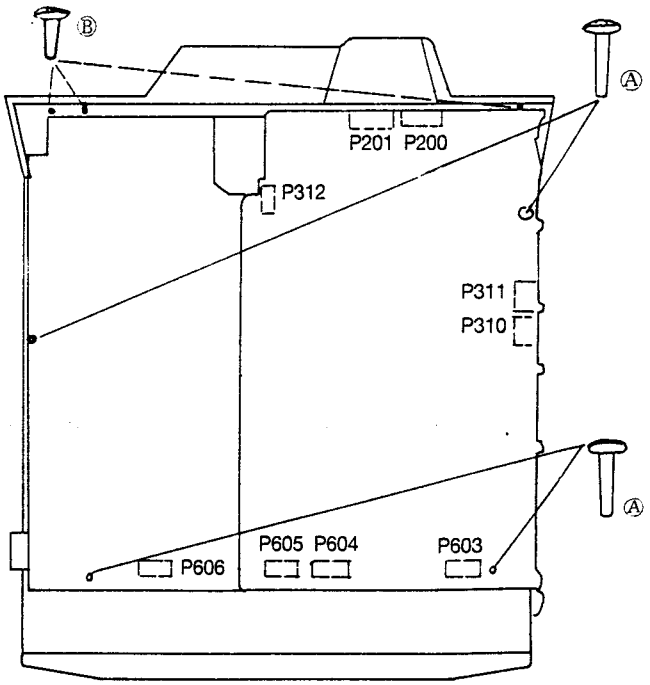


Fig. 1-3

1-4. REMOVAL OF THE TRAY BLOCK

Remove the MAIN PCB.

Slide the GEAR HOLDER RETAINING SCREW in the direction of the arrow and pull out the TRAY BLOCK slowly.

Remove the MAIN PCB HOLDER RETAINING SCREWS then remove the MAIN PCB HOLDER and the BRACKETS on both side.

Remove the TRAY BLOCK.

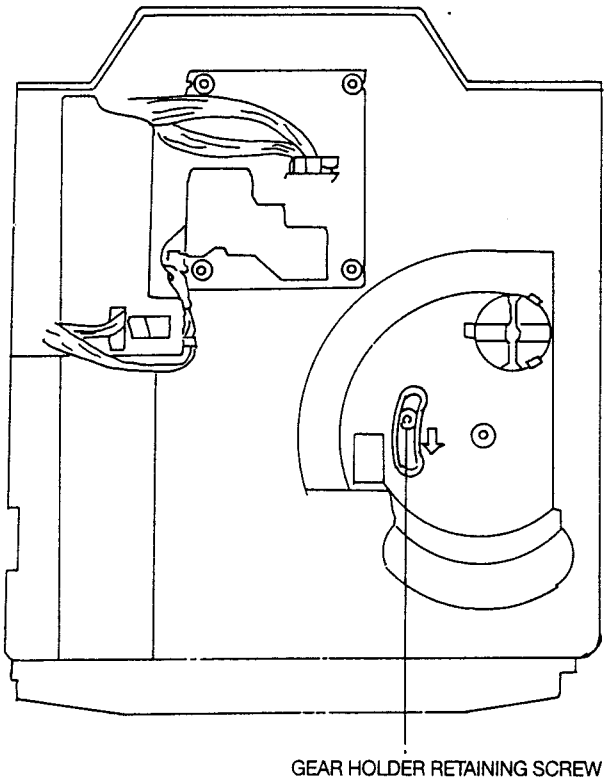


Fig. 1-4

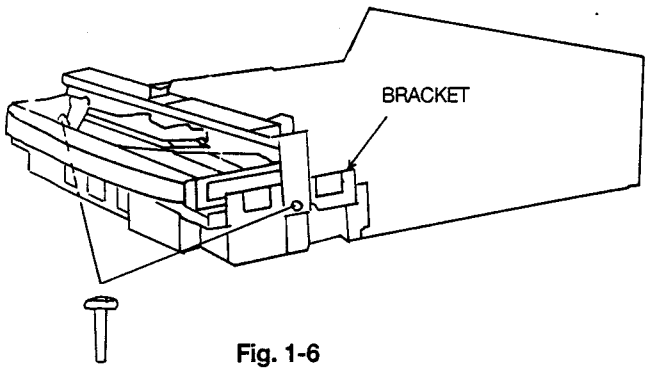


Fig. 1-6

1-5. REPLACEMENT OF THE PICK UP BLOCK

1) Remove the TRAVERSE MECHA.

2) Push the stopper Ⓐ in the right direction and pull the SLIDE SHAFT in the forward direction to remove the PICK UP BLOCK, then replace the PICK UP BLOCK.

3) Reassemble in the reverse order.

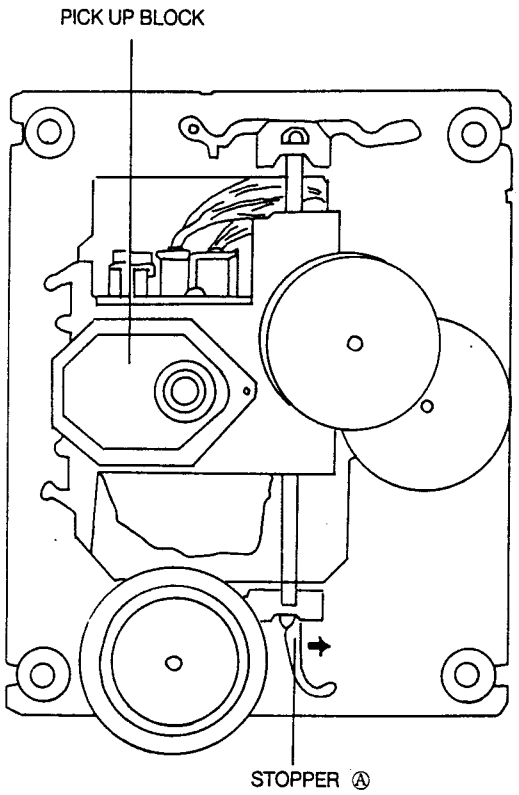


Fig. 1-5

1-6. REPLACEMENT OF THE SPINDLE MOTOR

Replacement of the SPINDLE MOTOR itself is not recommended, because the adjustment of the TURN TABLE height is quite critical and necessitating the use of a special jig.

1-7. REPLACEMENT OF THE SLED MOTOR

1) Remove the TRAVERSE MECHA.
2) Remove the MOTOR PCB.
3) Remove the SLED MOTOR RETAINING Ⓑ SCREWS, then replace the SLED MOTOR.
4) Reassemble in the reverse order.

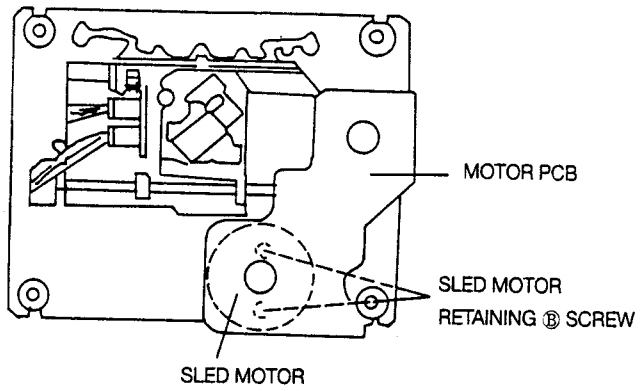


Fig. 1-7

1-8. REPLACEMENT OF THE LOADING MOTOR

1) Push the GEAR HOLDER RETAINING SCREW in the direction of the arrow, then pull out the TRAY BLOCK.
2) Remove the LOADING BELT and the LOADING MOTOR RETAINING SCREWS.
3) Unsolder the lead wires of the LOADING MOTOR with a soldering iron.
4) While opening the LOADING MOTOR'S THREE RETAINING HOOKs, remove and replace the LOADING MOTOR.
5) Reassemble in the reverse order.

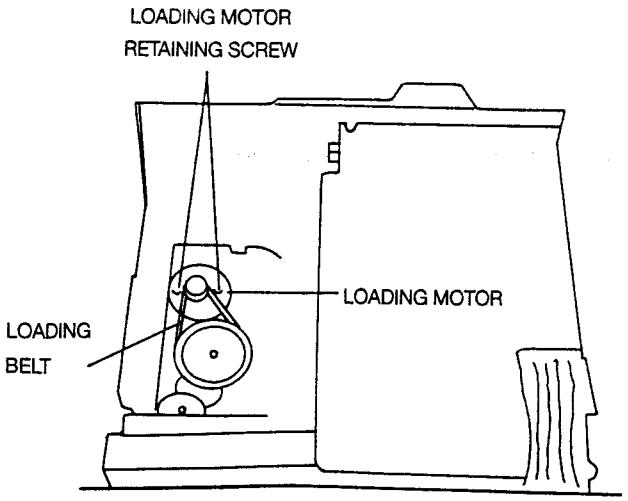


Fig. 1-8

1-9. REPLACEMENT OF THE TABLE MOTOR

1) Remove the MAIN PCB.
2) Remove the TRAY BLOCK.
3) Remove the DISC HOLDER RETAINING SCREW then remove DISC HOLDER.
4) Remove the GEAR COVER then remove the TABLE GEAR(B) and GEAR WORM WHEEL TABLE.
5) Unsolder the lead wires of the TABLE MOTOR.
6) Remove the TABLE MOTOR while opening the TABLE MOTOR RETAINING HOOK, then replace the TABLE MOTOR.
7) Reassemble in the reverse order.

NOTE: 1) When reassembling, make sure that the TABLE GEAR (A)'s hole is aligned with the reference hole on the LOADING TRAY.
2) When instailing the DISC HOLDER on the LOADING TRAY, make sure to place the DISC HOLDER so that the label "3" is facing upward (label "2" faces right and label "1" faces left accordingly).

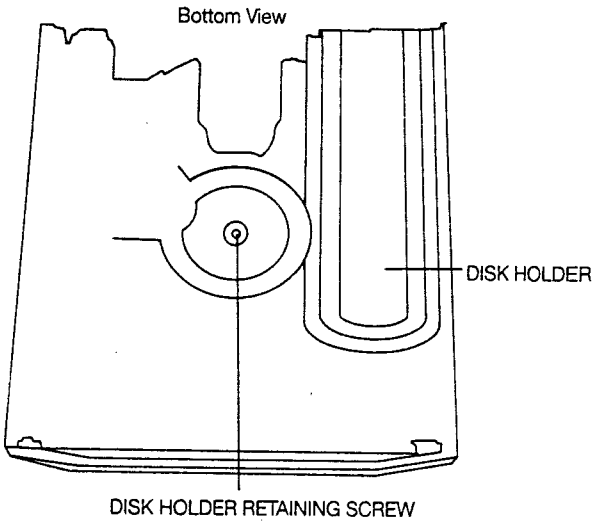


Fig. 1-9

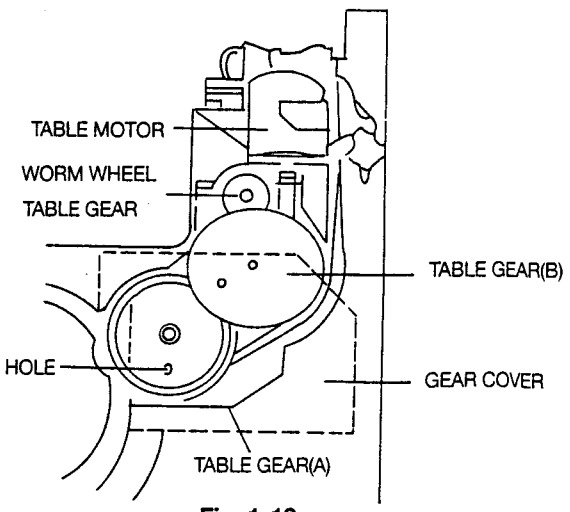


Fig. 1-10

IV. ADJUSTMENT

CD ELECTRICAL ADJUSTMENT

TEST MODE FOR CD PLAYER'S OPERATION

Some adjustments of the CD PLAYER section are automatically carried out by the micro computer.
If the CD player section is defective and it is necessary to partially check the operation, the "CD TEST" mode can be used while repairing.

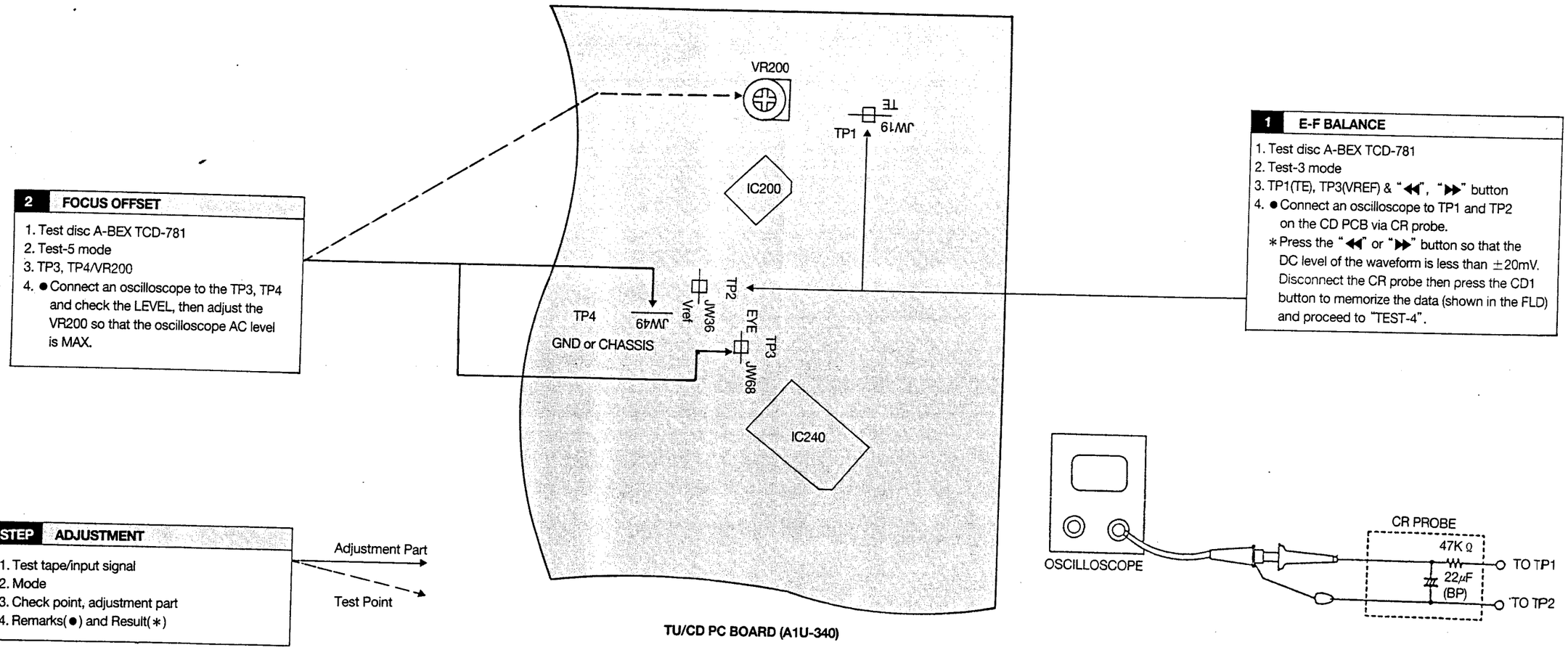
Engaging the "CD TEST" mode

While pressing and holding both the "PROG" and "CH MEMO" buttons, plug in the AC power cord to the AC outlet.

NOTE:

- During "CD TEST" mode, only the DISC "1" ▲ open/close button can be used for loading. So, place a disc on "TRAY 1".
- Proceed testing by pressing the "CD1" button once for each testing step.
  The testing step will return to "TEST" if the "1" ▲ open/close button is pressed during steps "TEST-1" to "TEST-5".
  To repeat the check after the step number has reached "TEST-5", open the tray once and repeat the procedure by also pressing the "1" ▲ open/close button.
- To disengage the "CD TEST" mode, press the "POWER ON/STANDBY" button or disconnect the AC power cord from the AC outlet.
- Prepare a CR probe and connect an oscilloscope as shown below before adjustment of "E-F BALANCE".
- Never connect the AC millivoltmeter's or oscilloscope's GND to the ground line of the unit during adjustment as it may cause a "short circuit" of the VREF line to the ground.

DISPLAY	FUNCTION
TEST	Initial condition of the "CD TEST" mode.
TEST-1	Laser emission is ON.
TEST-2	Perform "focus search" then turn on the "focus servo".
TEST-3	Tracking servo is off and CLV servo is on. Perform "E-F balance" adjustment manually (setting data value of the "E-F balance" is displayed on the FLD).
TEST-4	Tracking gain adjustment is carried out automatically and its data value is displayed on the FLD.
TEST-5	Tracking servo is turned on and the normal playback mode is engaged.



TU/CD PC BOARD (A1U-340)

1 E-F BALANCE

1. Test disc A-BEX TCD-781
2. Test-3 mode
3. TP1(TE), TP3(VREF) & "◀◀", "▶▶" button
4. ● Connect an oscilloscope to TP1 and TP2 on the CD PCB via CR probe.
   ∗ Press the "◀◀" or "▶▶" button so that the DC level of the waveform is less than ±20mV. Disconnect the CR probe then press the CD1 button to memorize the data (shown in the FLD) and proceed to "TEST-4".

2 FOCUS OFFSET

1. Test disc A-BEX TCD-781
2. Test-5 mode
3. TP3, TP4/VR200
4. ● Connect an oscilloscope to the TP3, TP4 and check the LEVEL, then adjust the VR200 so that the oscilloscope AC level is MAX.

STEP ADJUSTMENT

1. Test tape/input signal
2. Mode
3. Check point, adjustment part
4. Remarks(●) and Result(∗)

Adjustment Part

Test Point

V. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part NO., Model No., and the description of each part.
   Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering.
   If not, a part different from the one you ordered may be delivered.

[NOTE]

The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.

WARNING

⚠(*) INDICATED SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠(*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

1. RECOMMENDED SPARE PARTS

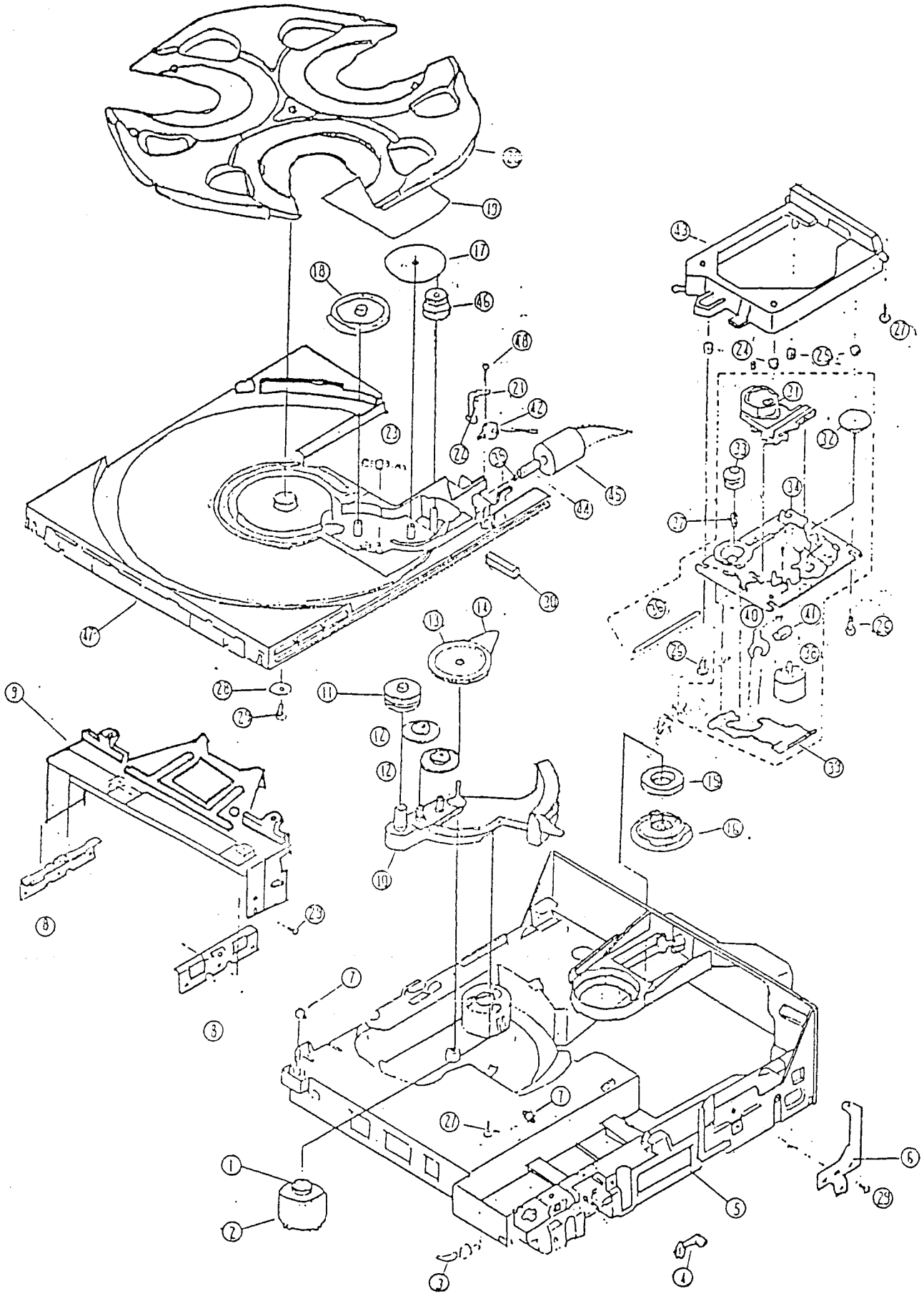
We suggest that you stock the following Recommended Spare Parts items listed below since they can cover most of the routine service.

Ref. No.	Part No.	Description
1	DDTR-00040-T10	DIODE-RECTIFIER 1N4004(400V 1A) DO-41 T
2	DDTS-00060-SO0	DIODE-SI 1SS131 (90V 0.13A) DO-40 T
3	DDTZ-U0260-SA0	DIODE ZENER HZS3A1 2.5-2.7
4	DDTZ-U0360-SA0	DIODE ZENER HZS4A2 3.5-3.7
5	DDTZ-U0460-SA0	DIODE ZENER HZS5A3 4.5-4.7
6	DDTZ-U0480-SA0	DIODE ZENER HZS5B2 4.7-4.9
7	DDTZ-U074C-SA0	DIODE ZENER HZS7C-1L 7.2-7.6
8	DDTZ-U132B-SA0	DIODE ZENER HZS12B-13L 12.9-13.4
9	DPFL-00440-00T	DISPLAY FLUORESCENT 12-BT-83GK TUNER
10	DPLT-00670-MC3	DOT-LED SLH-38MC3 GRN 3.1PI
11	ICCM-00231-SR0	IC 2KBIT CMOS EEPROM ST24C02AB1/AAB DIP8
12	ICCM-20540-SQ0	IC HEX INVERTER GD74LS05 DIP14
13	ICCM-20811-S10	IC CMOS DRIVER [E/B version] LC7073M MFP18
14	ICDG-01430-S40	IC CD DSP CXD2508AQ
15	ICDG-01470-S70	IC RDS [E/B version] SAA6579T-T SOP16
16	ICDG-01480-SB0	IC MOTOR DRIVER BA6247 SIP10
17	ICHY-00220-U60	IC REMOTE RECEIVER TFMT5380
18	ICLN-01520-S40	IC A.S.P CXA1782Q QFP48
19	ICLN-01590-SE0	IC MOTOR CONTROL CDP KA-92580 HSOP28
20	ICLN-01930-SC0	IC SYSTEM RESET PST-9121 2.1V TO92 (Before modification)
(*)20-1	ICRG-00570-SD0	IC SYSTEM RESET KIA7021P 2.1V TO92 (After modification)
21	ICMP-01212-S90	IC COMPUTER M38184M8-170FP QFP100
22	ICOP-00133-SG0	IC DUAL OP AMP NJM4558D DIP8
23	KTAL-00310-338	X-TAL HC-49/U 33.8688MHz
24	KTAL-00321-433	CRYSTAL [E/B version] HC-49/U 4.332MHz
25	KTRE-00091-040	RESONATOR [E/B version] CST4.00MGW-TF01 T05
26	KTRE-00161-060	RESONATOR CST6.00MGW TF01
27	RFUT-F4R7G-001	RESISTOR-FUSIBLE ERD2FCV 1/4W 4.7ohm
28	SKOP-00010-001	SOCKET OPTICAL GP1F32T
29	SWTA-00090-06V	SWITCH-TACT SKHHLM 12V 50mA W/GND
30	SWTA-00360-060	SWITCH-TACT SKHV10907A
31	TEAT-00120-03S	TERMINAL ANTENNA SC021058KN 3P
32	TRSK-0001G-S30	FET N-CHANNEL 2SK246-GR TO92
33	TRTA-0041E-SOS	TRANSISTOR P-H FREQ DTA144E-S W/RESIST TO92M
34	TRTA-0042E-SOS	TRANSISTOR P-H FREQ DTA124E-S TO92M
35	TRTA-0067G-SD0	TRANSISTOR P-H FREQ KTA1267-GR TO92M
36	TRTA-0091J-SOS	TRANSISTOR P-H FREQ DTA123JL FLT TL2
37	TRTB-00170-SB0	TRANSISTOR P-L FREQ 2SB1425 T103 TO92L
38	TRTC-0034Y-SOS	TRANSISTOR N-H FREQ DTC114Y-S TO92
39	TRTC-0063W-SOS	TRANSISTOR N-H FREQ DTC144W-S W/RESIST TO92M
40	TRTC-0064E-SOS	TRANSISTOR N-H FREQ DTC143E-S W/RESIST TO92M
41	TRTC-0070Z-SOS	TRANSISTOR N-H FREQ DTC143Z-S W/RESIST TO92M
42	TRTC-0075T-SOS	TRANSISTOR N-H FREQ DTC114T-S W/RESIST TO92M
43	TRTC-0076T-SOS	TRANSISTOR N-H FREQ DTC124T-S W/RESIST TO92M
44	TRTC-01320-SOS	TRANSISTOR N-H FREQ DTC123J-S W/RESIST TO92M
45	TRTC-01320-S30	TRANSISTOR N-H FREQ 2SC4682 TO92L
46	TUMR-00030-00D	TUNER RF/MODULE TFCB3E 714A [E/B version]
47	TUMR-00031-00F	TUNER RF/MODULE TFCB1U 713A [U/Y/S version]

NOTE(*)

Please reter to page 19 for modification of Ref. no. 20 to 20-1

CD MECHANISM



2. CD MECHANISM

Ref. No.	Part No.	Description
1	MJAF-11520-004	PULLEY
2	FMWG-00100-130	MOTOR
3	SWLF-00160-AS0	SWITCH-LEAF
4	MJAF-11510-004	LEVER-SW-LOADING
5	MJAF-03271-ZZ1	CHASSIS MAIN
6	MPAC-13170-004	BRACKET-PCB
7	MJAF-11550-004	ROLLER
8	MPAC-12920-004	HOLDER-TRAY
9	MPAC-03460-002	HOLDER-PCB(A)
10	MJAF-02200-002	HOLDER-GEAR
11	MJAF-11500-004	GEAR-LOADING(A)
12	MJAF-11530-004	GEAR-LOADING(B)
13	MJAF-04680-003	PULLEY GEAR
14	MRAG-10200-004	BELT
15	MMAC-13180-004	MAGNET
16	MJAF-02210-002	CLAMPER-C
17	MJAF-04710-003	GEAR-TABLE(B)
18	MJAF-04690-003	GEAR TABLE(A)
19	MGAG-10180-ZZ4	COVER GEAR
20	MJAF-03261-ZZ1	HOLDER DISC (B)
21	MMAC-12930-004	SP PLATE HOLDER-DISC
22	MJAF-11540-004	LEVER-S/W
23	SWLF-00150-AS0	SWITCH-LEAF
24	MRAG-11400-004	INSULATOR E BLUE(40)
25	MRAG-11401-004	INSULATOR B RED(30°)
26	MMAC-14011-004	SCREW GRADEATED
27	XSTS-30080-ZY4	SCREW-TAPPING
28	MPAC-13541-004	PLAIN-WASHER-1
29	XSTB-30080-ZB4	SCREW-TAPPING
30	MRAG-10941-004	CUSHION-FLT
31	PU32-00070-000	LASER-PICK UP
32	MZ-733201J	GEAR(A)
33	MZ-733200J	CENTER RING(LO)
34	MA-733202J	TURNTABLE CHASSIS ASS'Y
35	MMAC-13160-004	SHAFT-WORM
36	MS-733198J	SLIDE SHAFT
37	ZG-733199J	SP COMPRESSION
38	BM-733202J	MOTOR GEAR ASS'Y
39	EA-733204J	MOTOR P.C BOARD(6P)
40	ES-733205J	SW LEAF
41	EJ-733206J	CONNECTOR 6P
42	SWLF-00595-068	SWITCH-SLIDE
43	MJAF-02190-002	HOLDER-TRAVERSE
44	MJAF-11560-004	WORM-TABLE
45	EMWG-00110-120	MOTOR
46	MJAF-04700-003	GEAR-WORMWHEEL-TABLE
47	MJAF-03290-ZZ1	TRAY LOADING
48	XSTB-20100-ZB4	SCREW-TAPPING

3. PC BOARD BLOCK

Ref. No.	Part No.	Description
1	A2CC-F1000-A2E	TU/CD PCB (TC-703R [E version])
	A2CC-F1001-A2Z	TU/CD PCB (TC-700 [U/Y/S version])

4. PCB(#)-TU/CD MAIN (A1U-340A)

Ref. No.	Part No.	Description
D290	DDTR-00040-T10	DIODE-RECTIFIER
D291		1N4004(400V 1A) DO-41T
D292		
D293		
D294		
D1	DDTS-00060-SO0	DIODE-SI
D2		1SS131 (90V 0.13A) DO-40 T
D3		
D4		
D5		
D6		
D7		
D8		
D9		
D10		
D11		
D313	DDTZ-U0260-SA0	DIODE ZENER
		HZS3A1 2.5-2.7
D312	DDTZ-U0360-SA0	DIODE ZENER
		HZS4A2 3.5-3.7
D311	DDTZ-U0460-SA0	DIODE ZENER
		HZS5A3 4.5-4.7
D100	DDTZ-U0480-SA0	DIODE ZENER
		HZS5B2 4.7-4.9
D310	DDTZ-U074C-SA0	DIODE ZENER
		HZS7C-1L 7.2-7.6
D12	DDTZ-U132B-SA0	DIODE ZENER
		HZS12B-3L 12.9-13.4
IC1	ICCM-20540-SQ0	IC HEX INVERTER
		GD74LS05 DIP14
IC101	ICCM-20811-S10	IC CMOS DRIVER [E/B version]
		LC7073M MFP18
IC240	ICDG-01430-S40	IC CD DSP
		CXD2508AQ
IC100	ICDG-01470-S70	IC RDS [E/B version]
		SAA6579T-T SOP16
IC310	ICDG-01480-SB0	IC MOTOR DRIVER
		BA6247 SIP10
PH601	ICHY-00220-U60	IC REMOTE RECEIVER
		TFMT5380
IC200	ICLN-01520-S40	IC A.S.P
		CXA1782Q QFP48
IC290	ICLN-01590-SE0	IC MOTOR CONTROL CDP
		KA-9258D HSOP28
IC2	ICLN-01930-SC0	IC SYSTEM RESET
		PST-9121 2.1V TO-92
		(Before modification)
	ICRG-00570-SD0	IC SYSTEM RESET
		KIA7021P 2.1V TO92
		(After modification)
IC260	ICOP-00133-SG0	IC DUAL OP AMP
		NJM4558D DIP8
L240	KIOA-41R5K-004	COIL INDUCTOR
		1.5μH K LAP02TA
X240	KTAL-00310-338	X-TAL
		HC-49/U 33.8688MHz
X100	KTAL-00321-433	CRYSTAL [E/B version]
		HC-49/U 4.332MHz
X101	KTRE-00091-040	RESONATOR [E/B version]
		CST4.00MGW-TF01 TO5
FR15	RFUT-F4R7G-001	RESISTOR-FUSIBLE
		ERD2FCV 1/4W 4.7ohm
J240	SKOP-00010-001	SOCKET OPTICAL
		GP1F32T
SW1	SWTA-00090-06V	SWITCH-TACT
		SKHHLM 12V 50mA W/GND
TM100	TEAT-00120-03S	TERMINAL ANTENNA
		SC021058KN 3P
TR252	TRSK-0001G-S30	FET N-CHANNEL
		2SK246-GR TO92
TR240	TRTA-0041E-SOS	TRANSISTOR P-H FREQ
		DTA144E-S W/RESIST TO92M
TR102	TRTA-0042E-SOS	TRANSISTOR P-H FREQ
		DTA124E-S TO92M
TR200	TRTA-0067G-SD0	TRANSISTOR P-H FREQ
TR201		KTA1267-GR TO92M
TR250		
TR290	TRTB-00170-SB0	TRANSISTOR P-L FREQ
TR292		2SB1425 T103 TO92L
TR310	TRTC-0034Y-SOS	TRANSISTOR N-H FREQ
TR311		DTC114Y-S TO92
TR312		
TR101	TRTC-0063W-SOS	TRANSISTOR N-H FREQ
		DTC144W-S W/RESIST TO92M
TR251	TRTC-0064E-SOS	TRANSISTOR N-H FREQ
		DTC143E-S W/RESIST TO92M
TR291	TRTC-0070Z-SOS	TRANSISTOR N-H FREQ
		DTC143Z-S W/RESIST TO92M
TR103	TRTC-0075T-SOS	TRANSISTOR N-H FREQ
TR104		DTC114T-S W/RESIST TO92M
TR242		
TR243		
TR202	TRTC-0076T-SOS	TRANSISTOR N-H FREQ
		DTC124T-S W/RESIST TO92M
TR1	TRTC-01320-SOS	TRANSISTOR N-H FREQ
		DTC123J-S W/RESIST TO92M
TR100	TRTC-01320-S30	TRANSISTOR N-H FREQ
		2SC4682 TO92L
UN100	TUMR-00030-00D	TUNER RF/MODULE
		TFCB3E 714A [E/B version]
	TUMR-00031-00F	TUNER RF/MODULE
		TFCB1U 713A [U/Y/S version]
VR200	VFEB-A001B-103	RESISTOR-SEMI FIXED
		EVN DXA A03 B14 10Kohm

5. PCB(#)-TU/CD DISPLAY (A1U-340B)

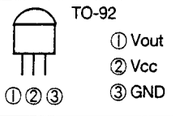
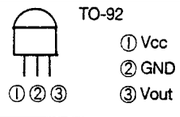
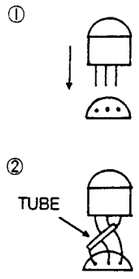
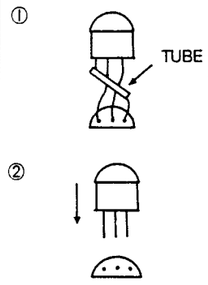
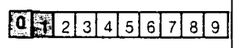
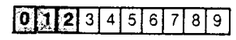
Ref. No.	Part No.	Description
IN601	DPFL-00440-00T	DISPLAY FLUORESCENT
		12-BT-83GK TUNER
D601	DPLT-00670-MC3	DOT-LED
D602		SLH-38MC3 GRN 3.1PI
D603		
IC602	ICCM-00231-SR0	IC 2KBIT CMOS EEPROM
		ST24C02AB1/AAB DIP8
PH601	ICHY-00220-U60	IC REMOTE RECEIVER
		TFMT5380

Ref. No.	Part No.	Description
IC601	ICMP-01212-S90	IC μCOMPUTER M38184M8-170FP QFP100
X602	KTAL-00180-003	CRYSTAL QW-6 32.768KHz
X601	KTRE-00161-060	RESONATOR CST6.00MGW TF01
IB601	NERT-J0018-473	NETWORK RESISTOR RGLE8T J 47K 8P 1.78mm
TS601	SWTA-00360-060	SWITCH-TACT SKHV10907A
TS602		
TS603		
TS604		
TS605		
TS606		
TS607		
TS608		
TS609		
TS610		
TS611		
TS612		
TS613		
TR601	TRTA-0091J-SOS	TRANSISTOR P-H FREQ DTA123JL FLT TL2
TR602		
TR603		

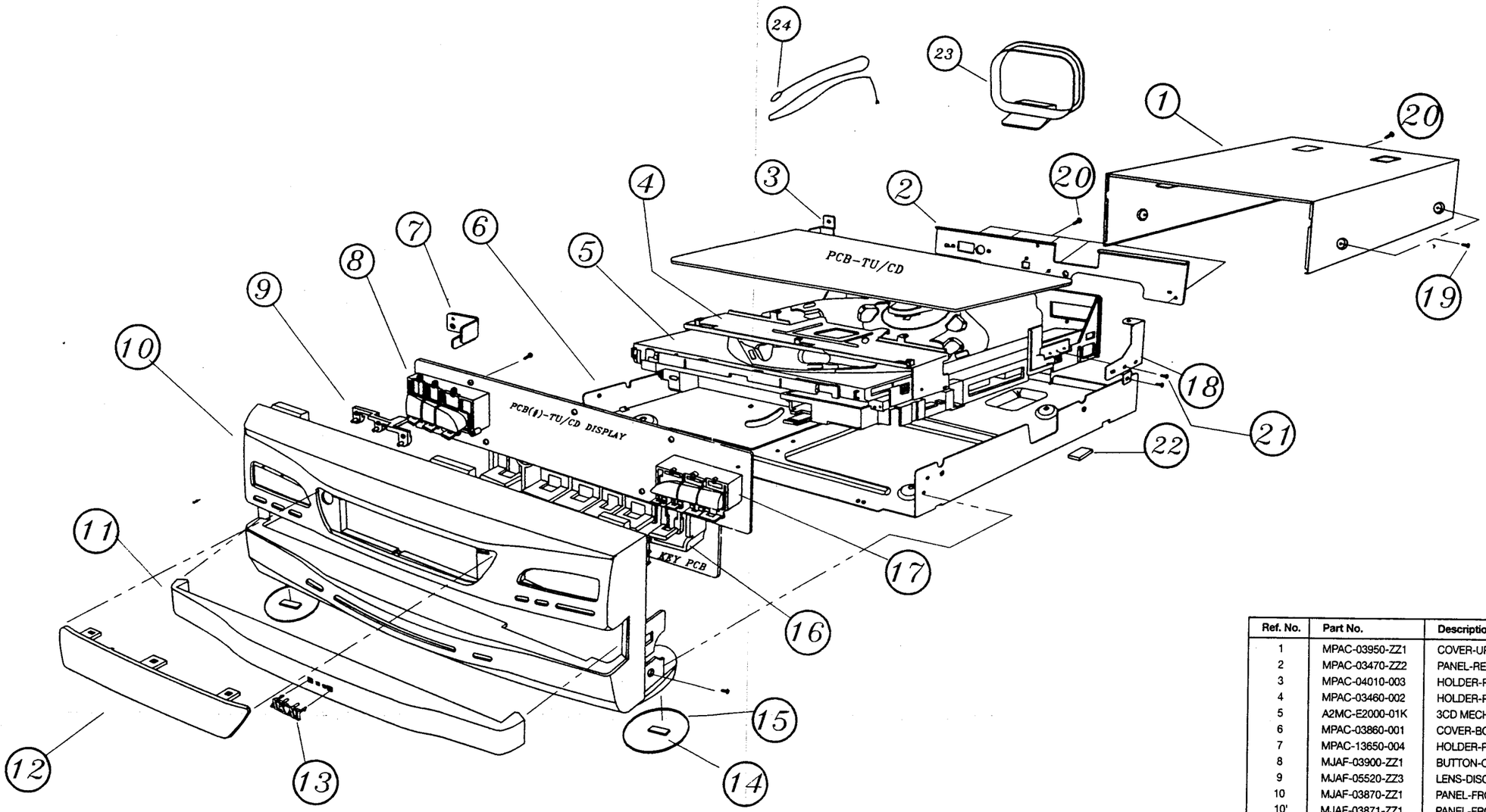
6. PCB(#)-TU/CD KEY (A1U-340C)

Ref. No.	Part No.	Description
TS701	SWTA-00360-060	SWITCH-TACT SKHV 10907A
TS702		
TS703		
TS704		
TS705		
TS706		

NOTE(*)
There is a change in part IC2 for IC SYSTEM RESET in the process of mass-production.
Please refer to the following modification.

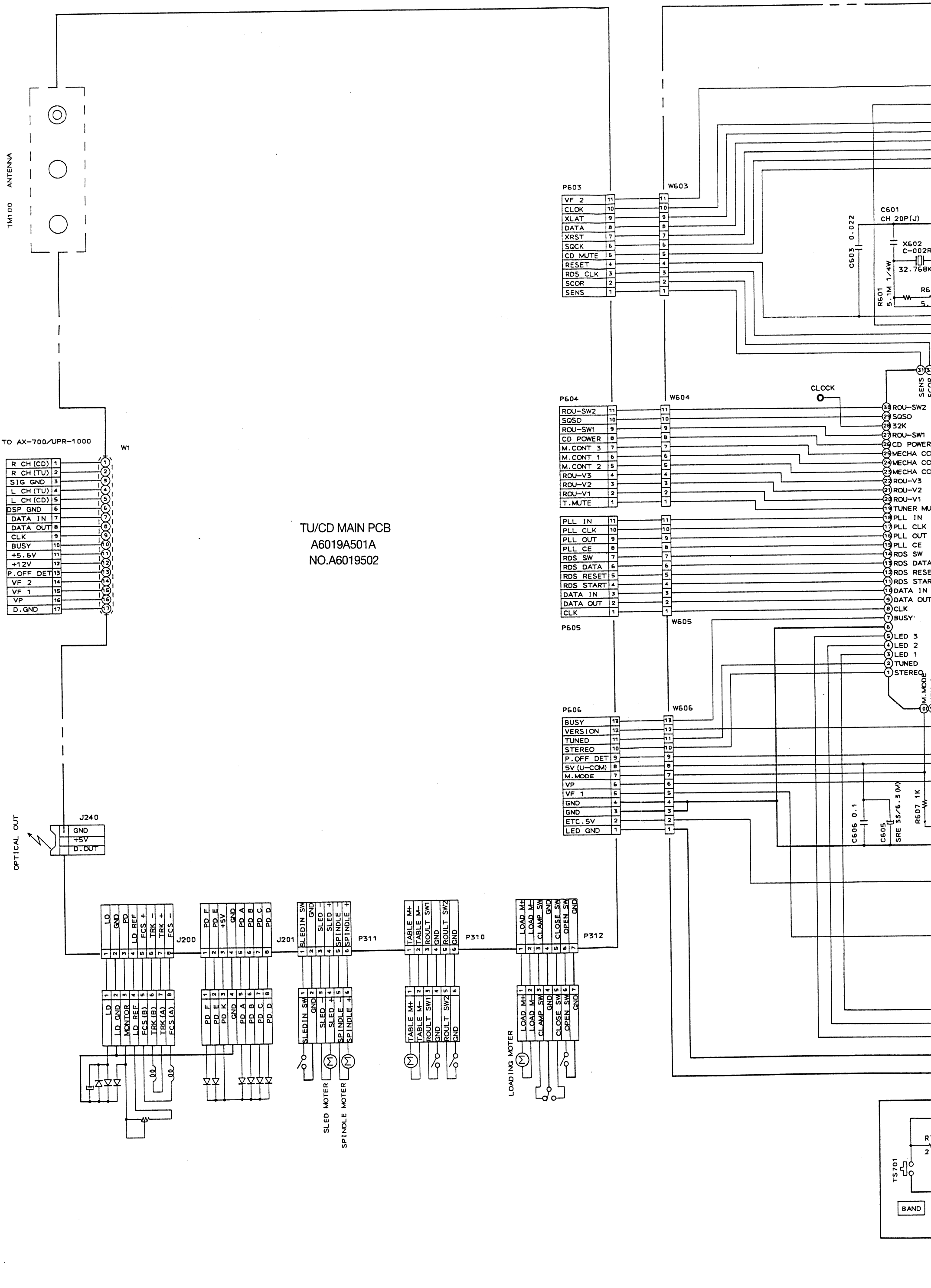
	Before Modification	After Modification
Part No. Description	ICLN-01930-SC0 IC SYSTEM RESET(*) PST-9121 2.1V TO92	ICRG-00570-SD0 IC SYSTEM RESET KIA7021P 2.1V TO92
Package and Port name		
How to insert the part		
Revision marking on the PCB		

7. FINAL ASSEMBLY
[TC-700/TC-703R]



Ref. No.	Part No.	Description
1	MPAC-03950-ZZ1	COVER-UPPER
2	MPAC-03470-ZZ2	PANEL-REAR
3	MPAC-04010-003	HOLDER-PCB(B)
4	MPAC-03460-002	HOLDER-PCB(A)
5	A2MC-E2000-01K	3CD MECHA
6	MPAC-03860-001	COVER-BOTTOM
7	MPAC-13650-004	HOLDER-PCB(C)
8	MJAF-03900-ZZ1	BUTTON-OPEN
9	MJAF-05520-ZZ3	LENS-DISC
10	MJAF-03870-ZZ1	PANEL-FRONT TC-700
10'	MJAF-03871-ZZ1	PANEL-FRONT TC-703R
11	MJAF-03880-ZZ1	PANEL-TRAY
12	MAAF-03890-ZZ1	WINDOW-FLD TC
13	MJAF-05530-ZZ3	NAME-PLATE AKAI
14	MRAG-11130-004	CUSHION-FOOT
15	MAAC-13670-004	RING-FOOT
16	MJAF-03920-ZZ1	BUTTON-OP
17	MJAF-03910-ZZ1	BUTTON-PLAY
18	MPAC-13170-004	BRACKET-PCB
19	XSTB-30080-ZB4	SCREW-TAPPING
20	MMAC-03952-004	SCREW-T/P-TOOTH
21	XSTB-30100-ZY4	SCREW-TAPPING
22	MRAG-10920-004	CUSHION-FOOT REAR
23	ANTL-00080-E50	ANTENNA LOOP
24	ANTW-00020-202	ANTENNA WIRE

VI. WIRING DIAGRAM



P603 / W603: VF 2, CLOK, XLAT, DATA, XRST, SQCK, CD MUTE, RESET, RDS CLK, SCOR, SENS

C601 CH 20P(J) · C602 CH 20P(J) · C603 0.022 · X602 C-002RX 32.768KHz · X601 CST6.0MGW · R601 5.1M 1/4W · R602 5.1M 1/4W · R603 270K

IC602 ST24C02AB1/AAB (SDA Vss, SCL A2, TEST A1, Vcc A0) · C604 SRE 33/6.3 (M) · R604 33K

P604 / W604: ROU-SW2, SQSO, ROU-SW1, CD POWER, M.CONT 3, M.CONT 1, M.CONT 2, ROU-V3, ROU-V2, ROU-V1, T.MUTE

P605 / W605: PLL IN, PLL CLK, PLL OUT, PLL CE, RDS SW, RDS DATA, RDS RESET, RDS START, DATA IN, DATA OUT, CLK

P606 / W606: BUSY, VERSION, TUNED, STEREO, P.OFF DET, 5V (U-COM), M.MODE, VP, VF 1, GND, GND, ETC.5V, LED GND

CLOCK

IC601 M38184M8-170FP TX1TUCD-C1

SENS SCOR RDS CLK REMOCON RESET XCIN XCOUT XIN XOUT GND CD MUTE SQCK XRST DATA XLAT CLOK EEPROM DATA EEPROM CLK

30 ROU-SW2 · 29 SQSO · 28 32K · 27 ROU-SW1 · 26 CD POWER ON/OFF · 25 MECHA CONT 3 · 24 MECHA CONT 1 · 23 MECHA CONT 2 · 22 ROU-V3 · 21 ROU-V2 · 20 ROU-V1 · 19 TUNER MUTE · 18 PLL IN · 17 PLL CLK · 16 PLL OUT · 15 PLL CE · 14 RDS SW · 13 RDS DATA · 12 RDS RESET · 11 RDS START · 10 DATA IN · 9 DATA OUT · 8 CLK · 7 BUSY · 6 · 5 LED 3 · 4 LED 2 · 3 LED 1 · 2 TUNED · 1 STEREO

DIG12 DIG11 DIG10 DIG 9 DIG 8 DIG 7 DIG 6 DIG 5 DIG 4 DIG 3 DIG 2 DIG 1 SEG 1 SEG 2 SEG 3 SEG 4 SEG 5 SEG 6 SEG 7 SEG 8 SEG 9 SEG10 SEG11 SEG12

M.MODE KEY 1 KEY 2 KEY 3 M.MODE VERSION VREF GND P.OFF DET VCC M.MODE VP SEG20 SEG19 SEG18 SEG17 SEG16 SEG15 SEG14 SEG13

IN601 12-BT-83GK

C606 0.1 · C605 SRE 33/6.3 (M) · R607 1K · IB601 RGLEBT 47K · C607 0.1 · C608 SRE 33/6.3 (M)

REMOCON SENSOR (GND Vcc REM) PH601 TFMT5380 · R608 10K

W601

P310: TABLE M+, TABLE M−, ROULT SW1, GND, ROULT SW2, GND

P312: LOAD M+, LOAD M−, CLAMP SW, GND, CLOSE SW, OPEN SW, GND

LOADING MOTER

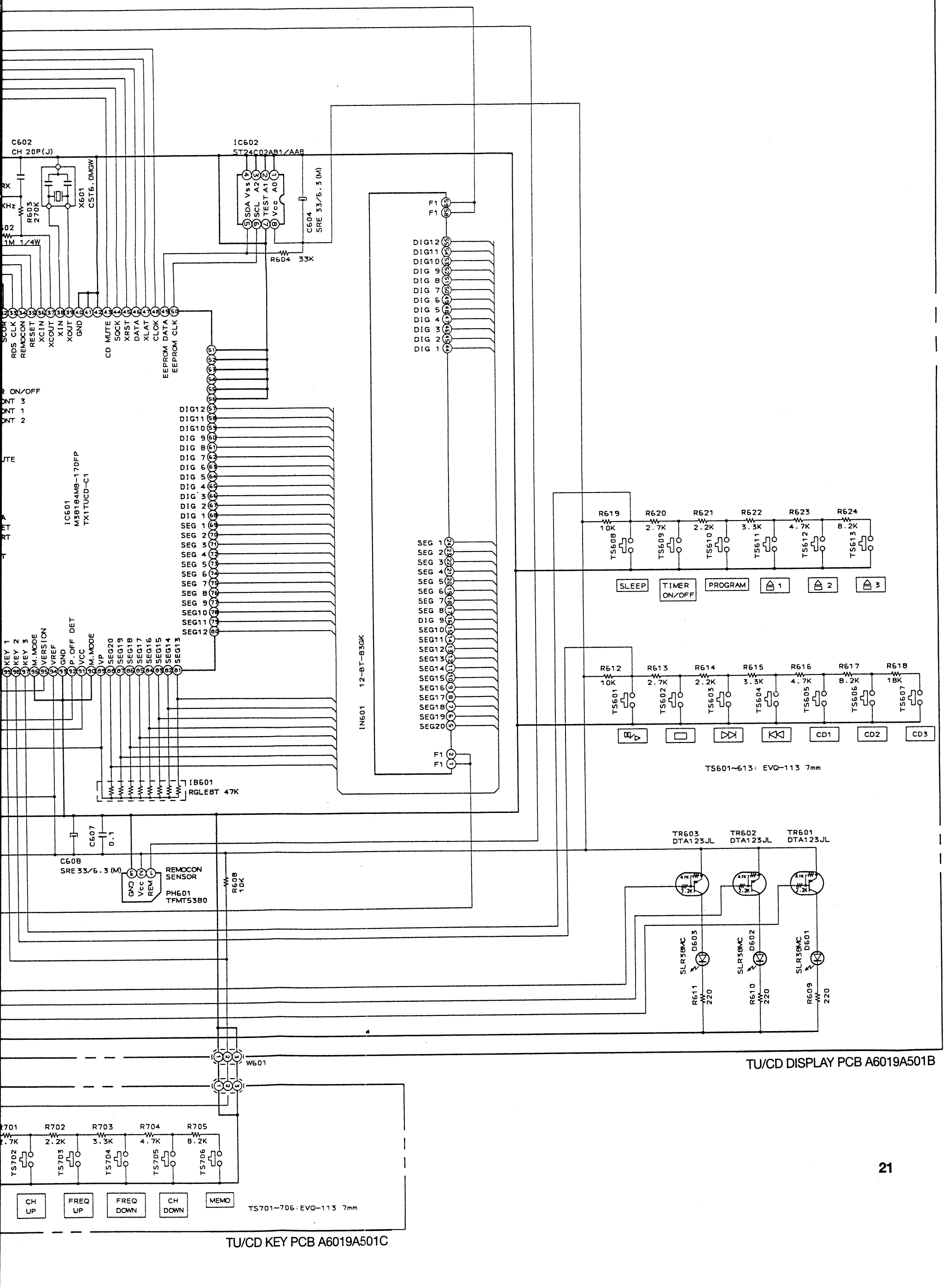
R701 2.7K · R702 2.2K · R703 3.3K · R704 4.7K · R705 8.2K

TS701 TS702 TS703 TS704 TS705 TS706

BAND · CH UP · FREQ UP · FREQ DOWN · CH DOWN · MEMO

TS701~706 : EVQ-113 7mm

TU/CD KEY PCB A6019A501C

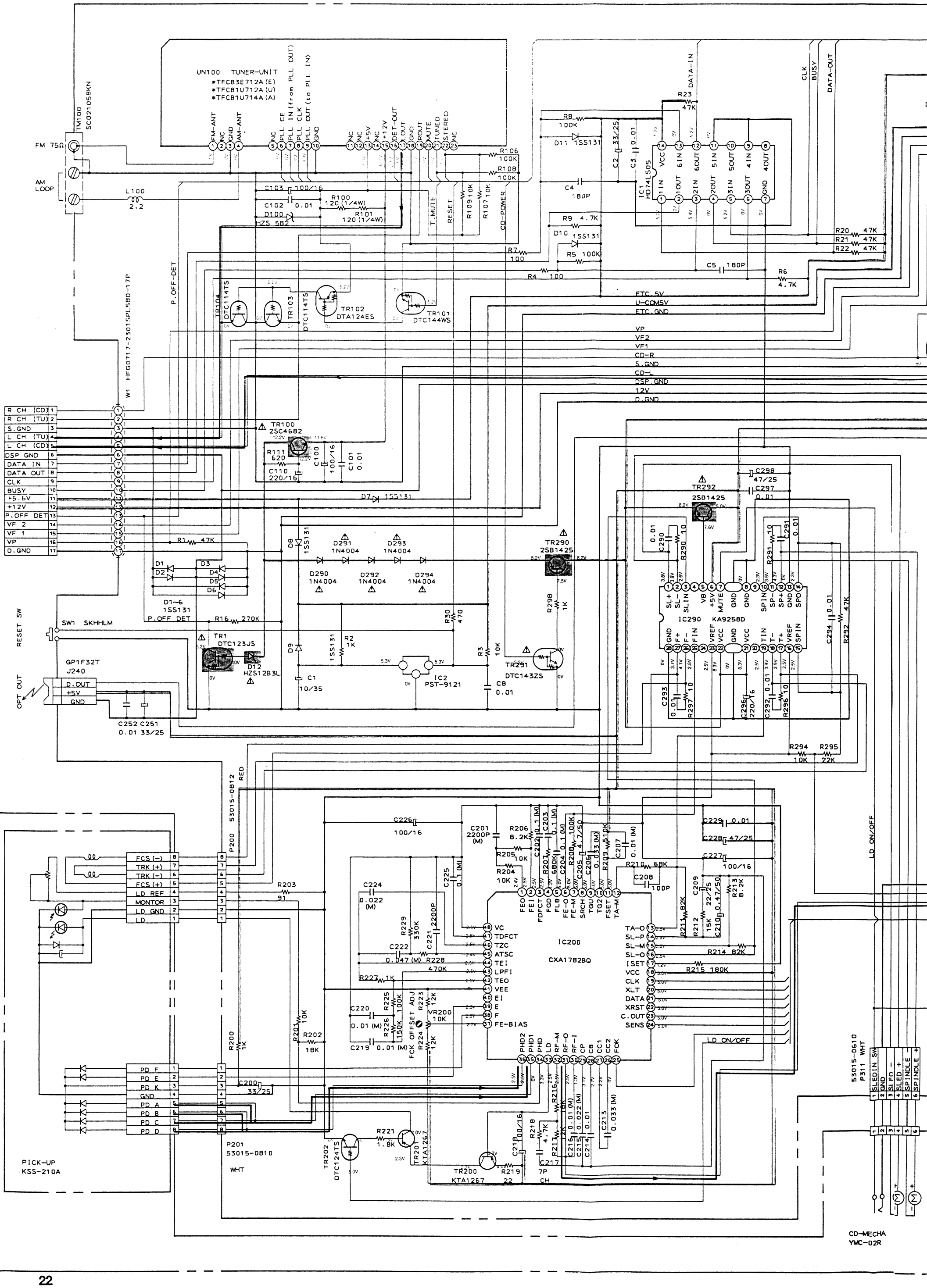


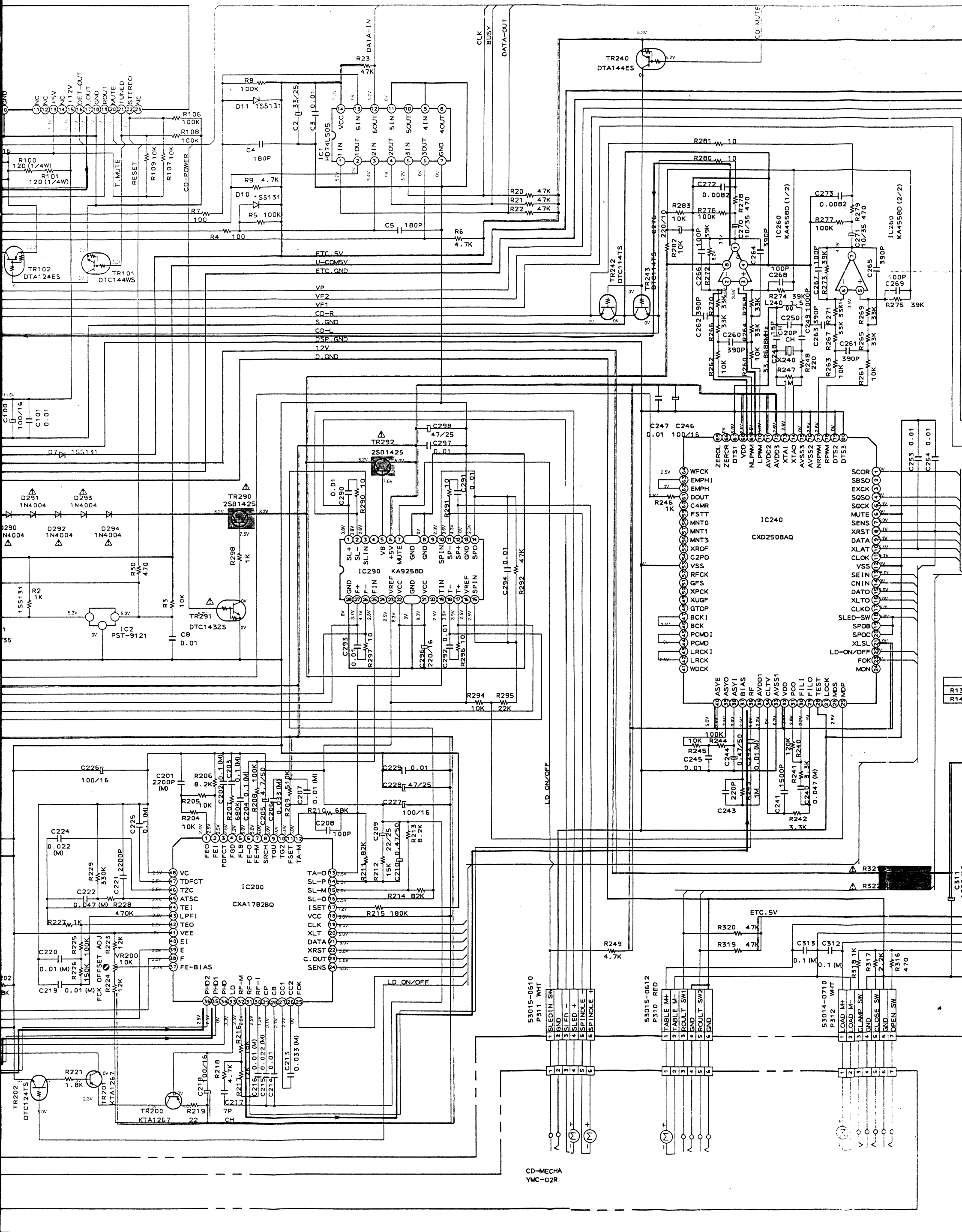
TU/CD DISPLAY PCB A6019A501B

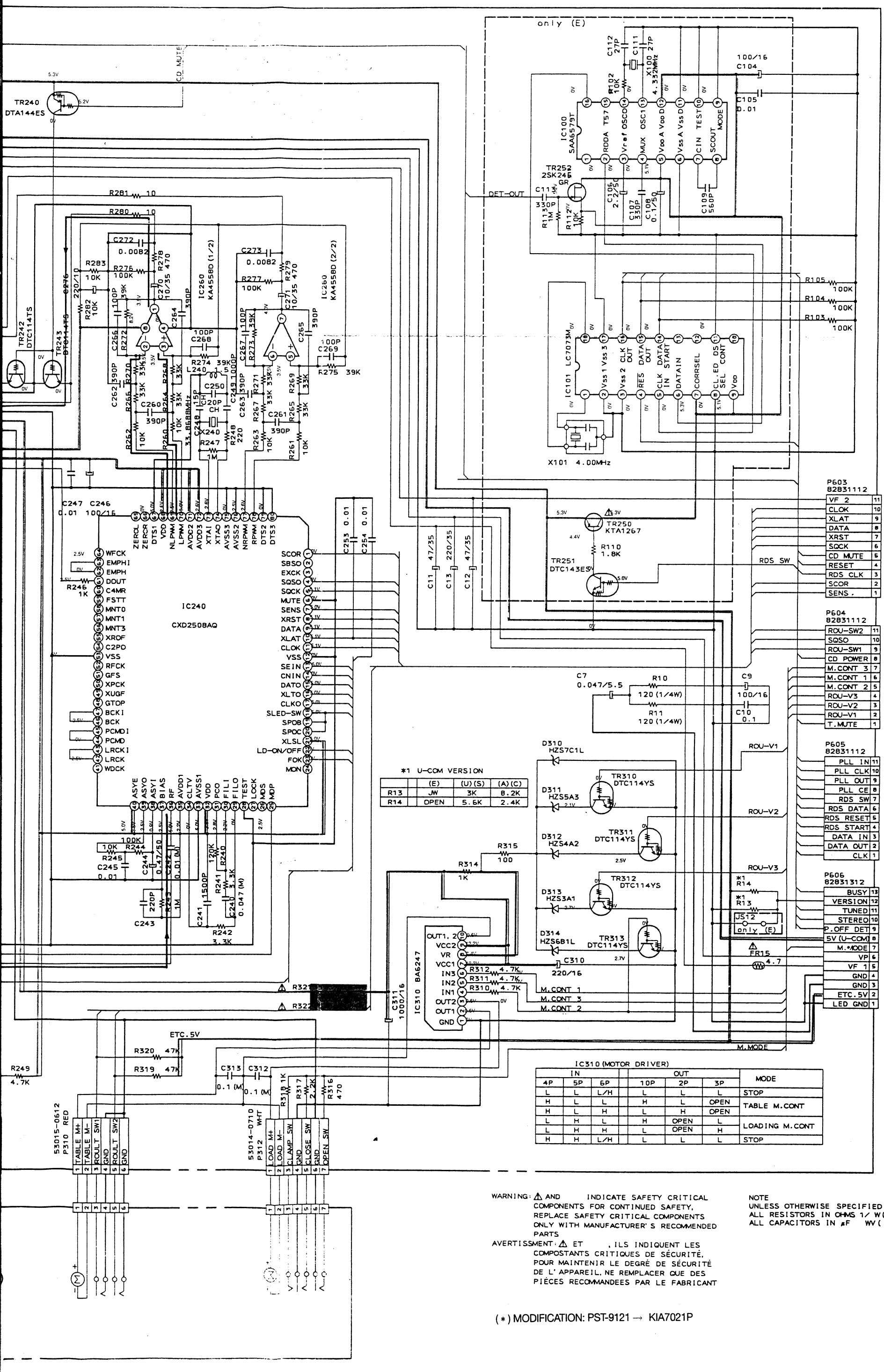
TU/CD KEY PCB A6019A501C

VII. SCHEMATIC DIAGRAM

PC(#)-TU/CD MAIN

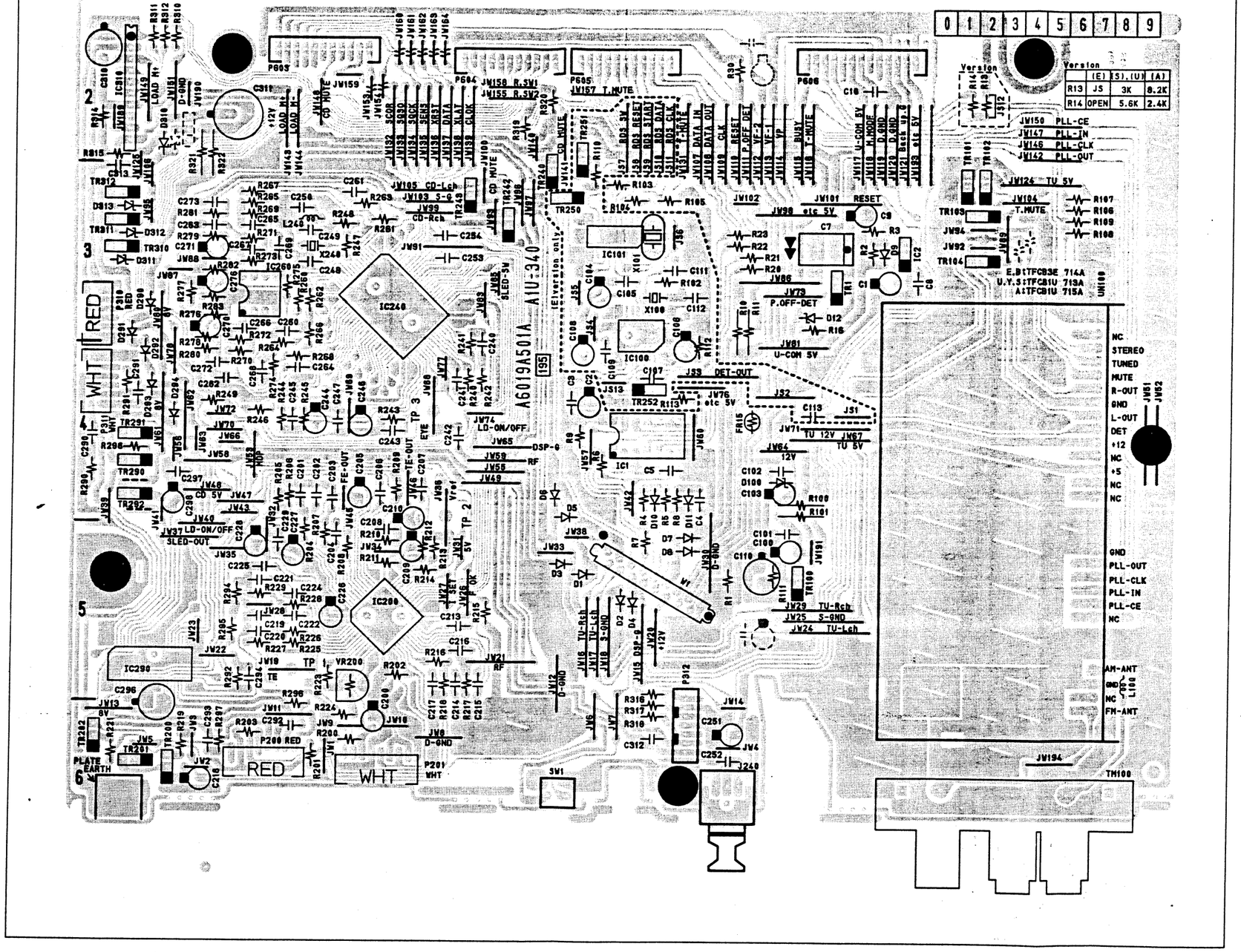



GND
NC
NC
+5V
NC
+12V
DET-OUT
LOUT
GND
ROUT
MUTE
TUNED
STEREO
NC
T.MUTE
RESET
CD-POWER
R100 120 (1/4W)
R101 120 (1/4W)
R106 100K
R108 100K
R109 10K
R107 10K
R8 100K
D11 1SS131
C2 33/25
C3 0.01
C4 180P
R9 4.7K
D10 1SS131
R5 100K
R7 100
R4 100
C5 180P
R6 4.7K
R23 47K
DATA-IN
IC1 HD74LS05
VCC 6IN 6OUT 5IN 5OUT 4IN 4OUT GND
1IN 1OUT 2IN 2OUT 3IN 3OUT
R20 47K
R21 47K
R22 47K
CLK
BUSY
DATA-OUT
C.D. MUTE
TR240 DTA144ES
TR242 DTC114TS
TR243 DTC114ES
TR102 DTA124ES
TR101 DTC144WS
ETC.5V
U-COM5V
ETC.GND
VP
VF2
VF1
CD-R
S.GND
CD-L
DSP.GND
12V
D.GND
C100 100/16
C101 0.01
D7 1SS131
D291 1N4004
D293 1N4004
D290 1N4004
D292 1N4004
D294 1N4004
R30 470
R2 1K
1SS131
IC2 PST-9121
R3 10K
C8 0.01
TR291 DTC143ZS
R298 1K
TR290 2SB1425
TR292 2SD1425
C298 47/25
C297 0.01
C290 0.01
R290 10
C291 0.01
R291 10
IC290 KA9258D
SL+ SL- SLIN VB +5V MUTE GND GND SPIN SP- SP+ GND SPO
GND F+ F- FIN VREF VCC GND VCC TIN T- T+ VREF SPIN
C293 0.01
R297 10
C296 220/16
C292 0.01
R296 10
C294 0.01
R292 47K
R294 10K
R295 22K
R281 10
R280 10
C272 0.0082
R283 10K
R276 100K
R278 470
C270 10/35
C273 0.0082
R277 100K
R279 470
C271 10/35
IC260 KA4558D (1/2)
IC260 KA4558D (2/2)
R282 10K
220/10
C276
C264 390P
C265 390P
C266 100P
R272 39K
C267 100P
R273 39K
C268 100P
R274 39K
C269 100P
R275 39K
C262 390P
R270 33K
R268 33K
R264 33K
R266 33K
R269 33K
R271 33K
R265 33K
C260 390P
C261 390P
R262 10K
R260 10K
R263 10K
R261 10K
C248 15P CH
C250 20P CH
X240 33.8688MHz
R247 1M
R248 220
R240 5
C249 1000P
C263 390P
C247 0.01
C246 100/16
C253 0.01
C254 0.01
IC240 CXD2508AQ
WFCK EMPHI EMPH DOUT C4MR FSTT MNT0 MNT1 MNT3 XROF C2PO VSS RFCK GFS XPCK XUGF GTOP BCKI BCK PCMDI PCMD LRCKI LRCK WDCK
SCOR SBSO EXCK SQSO SQCK MUTE SENS XRST DATA XLAT CLOK VSS SEIN CNIN DATO XLTO CLKO SLED-SW SPOB SPOC XLSL LD-ON/OFF FOK MON
ASYE ASYO ASYI BIAS RF AVDD1 CLTV AVSS1 VDD PCO FILI FILO TEST LOCK MDS MDP
R246 1K
R244 100K
R245 10K
C245 0.01
C244 0.47/50
C242 0.01 (M)
R240 120K
R241 3.3K
C240 0.047 (M)
C241 1500P
R242 3.3K
C243 220P
R243 1M
LD ON/OFF
R249 4.7K
R320 47K
R319 47K
C313 0.1 (M)
C312 0.1 (M)
R318 1K
R317 2.2K
R316 470
R321
R322
C311
53015-0610 P311 WHT
SLEDIN SW GND SLED - SLED + SPINDLE - SPINDLE +
53015-0612 P310 RED
TABLE M+ TABLE M- ROULT SW1 GND ROULT SW2 GND
53014-0710 P312 WHT
LOAD M+ LOAD M- CLAMP SW GND CLOSE SW GND OPEN SW
CD-MECHA YMC-02R
IC200 CXA1782BQ
VC TDFCT TZC ATSC TEI LPFI TEO VEE EI E F FE-BIAS
TA-O SL-P SL-M SL-O ISET VCC CLK XLT DATA XRST C.OUT SENS
FEO FEI FDFCT FGD FLB FE-O FE-M SRCH TGU TG2 FSET TA-M
C226 100/16
C201 2200P (M)
R206 8.2K
R205 10K
R204 10K
C202 0.1 (M)
C203 0.1 (M)
R207 680K
C204 0.1 (M)
R208 100K
C205 4.7/50
C206 0.033 (M)
R209 510K
C207 0.01 (M)
C225 0.1 (M)
C224 0.022 (M)
R229 330K
C221 2200P
C222 0.047 (M)
R228 470K
R227 1K
R225 100K
R223 12K
VR200 10K
FCK OFFSET ADJ
R226 150K
R224 12K
C220 0.01 (M)
C219 0.01 (M)
C229 0.01
C228 47/25
C227 100/16
R210 68K
C208 100P
C209 22/25
R211 82K
R212 15K
C210 0.47/50
R213 8.2K
R214 82K
R215 180K
LD ON/OFF
R216 10K
C216 0.01 (M)
C215 0.022 (M)
C214 0.01
C213 0.033 (M)
C218 100/16
R218 4.7K
C217 7P CH
R217 12K
TR202 DTC124TS
R221 1.8K
TR201 KTA1267
TR200 KTA1267
R219 22


only (E)
CD MUTE
TR240 DTA144ES
TR242 DTC114TS
TR243 DTC114TS
IC240 CXD2508AQ
IC260 KA4558D (1/2)
IC260 KA4558D (2/2)
IC100 SAA6579T
IC101 LC7073M
X101 4.00MHz
X100 4.332MHz
TR252 2SK246 GR
TR250 KTA1267
TR251 DTC143ES
IC310 BA6247
DET-OUT
RDS SW
ROU-V1
ROU-V2
ROU-V3
M.MODE
ETC.5V
*1 U-COM VERSION
IC310 (MOTOR DRIVER)
WARNING: ⚠ AND INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS
AVERTISSMENT: ⚠ ET , ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/ W( )
ALL CAPACITORS IN μF WV( )
(*) MODIFICATION: PST-9121 → KIA7021P

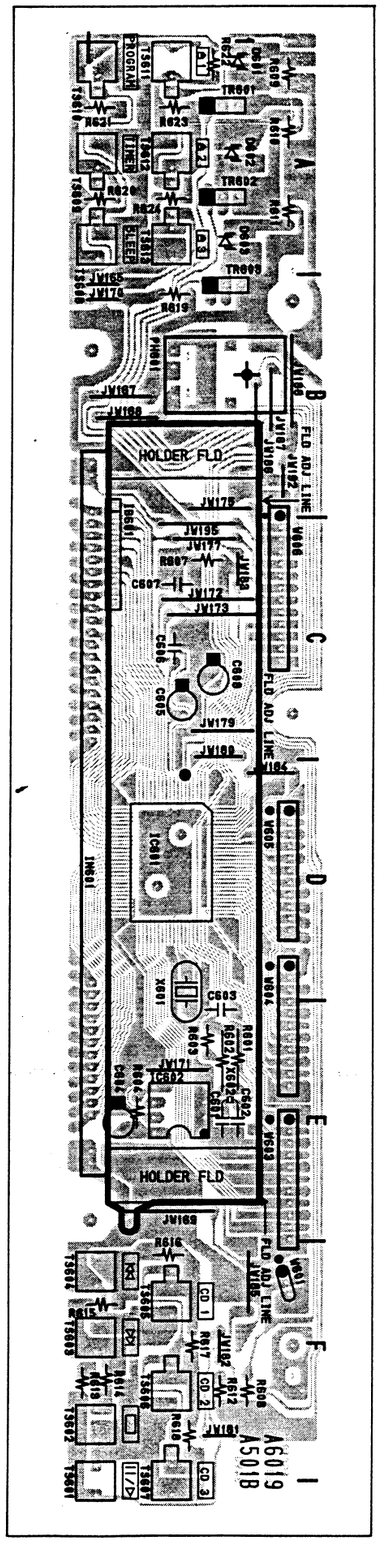
VIII. PCB LAYOUT

PCB(#)-TU/CD MAIN (A1U-340A)

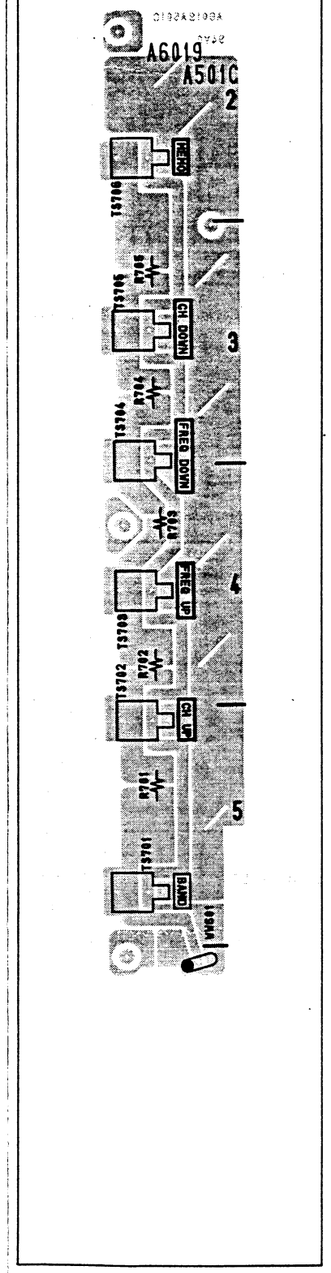


PCB LAYOUT

PCB(#)-TU/CD DISPLAY
(A1U-340B)



PCB(#)-TU/CD KEY
(A1U-340C)



X. INFORMATION OF ICs MI-COM

1. TUNER/CD CONTROL μ-COM (M38184M8-170FP)

Pin No	Port Name	I/O	Active	Description
1	STEREO	I	—	Input to Detect STEREO
2	TUNED	I	—	Input to Detect TUNED
3	LED1	O	L	Terminal to display disc loading or tray OPEN/CLOSE
4	LED2	O	—	Terminal to display disc loading or tray OPEN/CLOSE
5	LED3	O	—	Terminal to display disc loading or tray OPEN/CLOSE
6	GND	—	—	GND
7	REQUEST	I	—	Input to Communicate with Deck μ-Com
8	CLK	O	—	Input to Communicate with Deck μ-Com
9	DATA OUT	O	—	Input to Communicate with Deck μ-Com
10	DATA IN	I	—	Input to Communicate with Deck μ-Com
11	RDS START	I	—	Input for RDS Control
12	RDS RESET	O	L	Reset Control of RDS Error IC
13	RDS DATA	I	—	RDS Control Data
14	PLL SW	O		Power Source ON/OFF Control of RDS Circuit
15	PLL CE	O		PLL Control Port (Chip Enable)
16	PLL OUT	O		PLL Control OUT
17	PLL CLK	O		PLL Control CLK
18	PLL IN	I		PLL Data Input
19	TUNER MUTE	O	H	Tuner Mute Control ON/OFF
20	ROU-V1	O	L	Speed Control Output
21	ROU-V2	O	L	Speed Control Output
22	ROU-V3	O	L	Speed Control Output
23	MECHA CONT 2	O	—	Output to Detect Location of Tray Rotation
24	MECHA CONT 1	O	—	Output to Detect Location of Tray Rotation
25	MECHA CONT 3	O	—	Output to Detect Location of Tray Rotation
26	CD POWER ON/OFF	O	H	In TUNER Mode, CD Power Source Off Control
27	ROU-SW1	I	—	Turret CON
28	32K	O	—	Output for Clock Adjustment (Clock Test Mode only)
29	SQSO	I	—	Input for CD LSI Control
30	ROU-SW2	I	—	Input Terminal for Turret Control
31	C OUT	I	—	Input for CD LSI Control
32	SCOR	I	—	Input for CD DSP Control
33	RDS CLK	I	—	Input for RDS Control
34	REMOCON	I	—	REMOCON Signal Detection
35	RESET	I	L	CPU System Reset
36	XC IN	I	—	32,768KHz X-TAL OSC Input
37	XC OUT	O	—	32,768KHz X-TAL OSC Output
38	X IN	I	—	6,0MHz Main Clock X-TAL OSC Input
39	X OUT	O	—	6,0MHz Main Clock X-TAL OSC Output
40	GND	—	—	GND

Pin No	Port Name	I/O	Active	Description
41	GND	–	–	GND
42	GND	–	–	GND
43	SENS	I	H/L	SENS Input (SEIN, XBUSY, FOK, SEIN, GFS)
44	SQCK	O	–	CD DSP Control Clock
45	XRST	O	L	CD DSP Reset (Operation During System Reset)
46	DATA	O	–	CD DSP Control Data Output
47	XLAT	O	–	Latch Output(Latch at Falling Edge)
48	CLCK	O	–	Latch Output(Latch at Falling Edge)
49	EEPROM DATA	O	–	Data Output for EEPROM Control
50	EEPROM CLK	O	–	CLK for EEPROM Control
51	GND	–	–	GND
52	GND	–	–	GND
53	GND	–	–	GND
54	GND	–	–	GND
55	GND	–	–	GND
56	GND	–	–	GND
57	DIG12	O	H	FL Display Grid Drive
58	DIG11	O	H	FL Display Grid Drive
59	DIG10	O	H	FL Display Grid Drive
60	DIG9	O	H	FL Display Grid Drive
61	DIG8	O	H	FL Display Grid Drive
62	DIG7	O	H	FL Display Grid Drive
63	DIG6	O	H	FL Display Grid Drive
64	DIG5	O	H	FL Display Grid Drive
65	DIG4	O	H	FL Display Grid Drive
66	DIG3	O	H	FL Display Grid Drive
67	DIG2	O	H	FL Display Grid Drive
68	DIG1	O	H	FL Display Grid Drive
69	SEG1	O	H	FL Display Segment Drive
70	SEG2	O	H	FL Display Segment Drive
71	SEG3	O	H	FL Display Segment Drive
72	SEG4	O	H	FL Display Segment Drive
73	SEG5	O	H	FL Display Segment Drive
74	SEG6	O	H	FL Display Segment Drive
75	SEG7	O	H	FL Display Segment Drive
76	SEG8	O	H	FL Display Segment Drive
77	SEG9	O	H	FL Display Segment Drive
78	SEG10	O	H	FL Display Segment Drive
79	SEG11	O	H	FL Display Segment Drive
80	SEG12	O	H	FL Display Segment Drive

Pin No	Port Name	I/O	Active	Description
81	SEG13	O	H	FL Display Segment Drive
82	SEG14	O	H	FL Display Segment Drive
83	SEG15	O	H	FL Display Segment Drive
84	SEG16	O	H	FL Display Segment Drive
85	SEG17	O	H	FL Display Segment Drive
86	SEG18	O	H	FL Display Segment Drive
87	SEG19	O	H	FL Display Segment Drive
88	SEG20	O	H	FL Display Segment Drive
89	VP	—	—	FLT −VP (30V)
90	M MODE	—	—	—
91	VCC	I	—	μ-Com +5V Power Source
92	P OFF DET	I		Power OFF Detection
93	GND	—	—	GND
94	VREF	—	—	Reference Voltage
95	VERSION	I	—	Version Selection [E/B/V/S/U/Y7/A/S Version]
96	M MODE	—	—	
97	KEY3	I	—	Key Control Input
98	KEY2	I	—	Key Control Input
99	KEY1	I	—	Key Control Input
100	M MODE	—	—	

2. CXD2508AQ PIN DATA (CD DIGITAL SIGNAL PROCESS & SYSTEM CONTROL MI-COM)

Pin No.	Port Name	I/O	Function
1	SCOR	O	H output when either sub code S0 or S1 is detected.
2	SBSO	O	Serial output of Sub P to W.
3	EXCK	I	Clock input for SBSO read out.
4	SQSO	O	Serial output of SUBQ 80 bit.
5	SQCK	I	Clock input for SQSO read out.
6	MUTE	I	Muteing control. (H: MUTE, L: CANCEL)
7	SENS	O	SENS output. Output to the OPERATION MI-COM.
8	$\overline{\text{XRST}}$	I	System reset. Reset at L.
9	DATA	I	Serial data input from THE OPERATION MI-COM.
10	XLAT	I	Latch input from the OPERATION MI-COM. (Latching of serial data at falling edge of the pulse.)
11	CLOCK	I	Serial data transmission clock input from the OPERATION MI-COM.
12, 53	Vss	—	GND
13	SEIN	I	Sense input from SSP.
14	CNIN	I	Track jump number count signal input.
15	DATO	O	Serial data output to SSP.
16	XLTO	O	Serial data latch output to SSP. (Latching at falling edge of the pulse.)
17	CLKO	O	Serial data transmission clock output to SSP.
18	SLED SW	I	Innermost position ON/OFF detection input of sled motor. (Input A)
19	SPOB	I	Innermost position ON/OFF detection input of sled motor. (Input B)
20	SPOC	I	Innermost position ON/OFF detection input of sled motor. (Input C)
21	XLSL	I	X'tal selection input terminal. L when X'tal is 16.9344MHz. H when 33.8688MHz.
22	LD ON/OFF	O	Laser diode ON/OFF control.
23	FOK	I	Focus OK input terminal. For SENS output and servo automatic sequencer.
24	MON	—	Not used
25	MDP	O	Servo control for spindle motor.
26	MDS	—	Not used
27	LOCK	—	Not used
28	TEST	—	Regular GND for TEST terminal.
29	FILO	O	Filter output for master PLL. (slave = digital PLL)
30	FILI	I	Filter input for master PLL.
31	PCO	O	Charge pump output for master PLL.
33, 75, 76	AVSS1~3	—	GND
34	CLTV	I	VCO control voltage input for master.
36	RF	I	EFM signal input.
37	BIAS	I	Asymmetry circuit constant current input.
38	ASYI	I	Asymmetry compilasion voltage input.
39	ASYO	O	EFM full swing output. (L = Vss, H = VDD)
40	ASYE	I	L: Asymmetry circuit OFF H: Asymmetry circuit ON.
41	WDCK	—	Not used

Pin No.	Port Name	I/O	Function
42	LRCK	O	D/A interface for 48 bit slot. LR clock f = Fs
43	LRCKI	I	LR clock input to DAC.
44	PCMD	O	Serial data from D/A interface.
45	PCMDI	I	Audio data input to DAC.
46	BCK	O	Bit clock from D/A interface.
47	BCKI	I	Bit clock input to DAC.
48	GTOP	—	Not used
49	XUGF	—	
50	XPCK	—	
51	GFS	—	
52	RFCK	—	
54	C2PO	—	
55	XROF	—	
56	MNT3	—	
57	MNT1	—	
58	MNT0	—	
59	FSTT	—	
60	C4MR	—	
61	DOUT	O	Digital out terminal.
62	EMPH	O	H output when a playback disc is emphasised. L output when no emphasis.
63	EMPHI	I	De-emphasis control input. (H: ON, L: OFF)
64	WFCK	O	WFCK (Write Frame Clock) output.
65	ZEROL	—	Not used
66	ZEROR	—	Not used
67, 79, 80	DTS1~3	—	GND
69	NLPWM	O	L-ch PWM output. (opposite phase)
70	LPWM	O	L-ch PWM output. (in-phase)
73	XTAI	I	33.8688MHz X'tal oscillation circuit input.
74	XTAO	O	33.8688MHz X'tal oscillation circuit output.
77	NRPWM	O	R-ch PWM output. (opposite phase)
78	RPWM	O	R-ch PWM output. (in-phase)

3. RF I-V AMP/RF AMP CXA1782BQ

Pin No.	Port Name	I/O	Function
1	FEO	O	Focus drive output.
2	FEI	I	Focus error signal input.
3	FDFCT	I	Time constant capacitor connecting terminal at time of defect.
4	FGD	I	Connect condenser for Focus servo gain control.
5	FLB	I	Connect condenser for Focus servo correction.
6	FE-O	O	Focus drive output.
7	FE-M	I	FOCUS AMP Inverting input.
8	SRCH	I	Connect condenser for Focus search wave.
9	TGU	I	Connect condenser for Tracking gain select.
10	TG2	I	Connect condenser for Tracking gain select.
11	FSET	I	Terminal for peak setting for Focus tracking phase compensation.
12	TA-M	I	Tracking AMP Inverting input.
13	TA-O	O	Tracking drive output.
14	SL-P	I	Sled AMP non-inverting input.
15	SL-M	I	Sled AMP Inverting input.
16	SL-O	O	Sled drive output.
17	ISET	I	Focus search, Track jump and slide kick current input.
18	VCC	—	+5V
19	CLK	I	Clock signal input from the CD MI-COM.
20	XLT	I	Lutch signal input from the CD MI-COM.
21	DATA	I	Data signal input from the CD MI-COM.
22	$\overline{\text{XRST}}$	I	RESET input.
23	C. OUT	O	Track count signal output.
24	SENS	O	FZC, DFCT, TZC, GAIN and BAL output.
25	FOK	O	Focus OK signal output.
26	CC2	I	Input terminal of DEFECT bottom hold output which is supplied through capacitor.
27	CC1	O	DEFECT bottom hold output terminal.
28	CB	I	DEFECT bottom hold capacitor connecting terminal.
29	CP	I	Terminal for connection of MIRR hold capacitor. (Non inverted input terminal of MIRR comparator.)
30	RF-I	I	Input terminal of RF summing AMP output which is supplied through a capacitor.
31	RF-O	O	RF summing AMP output.
32	RF-M	I	RF summing AMP inverted input terminal.
33	LD	O	APC AMP output terminal.
34	PHD	I	APC AMP input terminal.
35	PHD1	I	RF I-V AMP inverted input terminal (for photo diode A+C of pick up)
36	PHD2	I	RF I-V AMP inverted input terminal (for photo diode B+D of pick up)
37	FE-BIAS	I	Terminal for bias adjustment of focus error amp.
38	F	I	RF I-V AMP inverted input terminal (for photo diode F of pick up)
39	E	I	RF I-V AMP inverted input terminal (for photo diode E of pick up)

Pin No.	Port Name	I/O	Function
40	EI	—	Not used
41	V_{EE}	—	GND
42	TEO	O	Tracking error amp output terminal. (E-F signal output.)
43	LPFI	I	BAL adjustment of comperator input terminal.
44	TEI	I	Tracking error input terminal.
45	ATSC	I	Window comperator input terminal for ATSC detection.
46	TZC	I	Input terminal of tracking zero cross comparator.
47	TDFCT	I	Time constant capacitor connecting terminal at time of defect.
48	VC	O	(VCC + VEE)/2 DC voltage output terminal.

4. RECEIVING BAND FREQUENCY RANGE

VERSION \ BAND	FM	MW	AM	LW	CLOCK
CEE, VDE BEAB [E/B/V version]	87.50-108.00MHz 50KHz STEP	531-1602KHz 9KHz STEP (* 1)	—	144-288KHz 1KHz STEP	24H
	87.50-108.00MHz 50KHz STEP	531-1602KHz 9KHz STEP (* 1)	—		24H
U/T [U/Y_6 version]	87.50-108.00MHz 100KHz STEP (* 2)	—	530-1710KHz 10KHz STEP (* 2)	—	12H
SAUDI ARABIA HONGKONG [S/Y_7 version]	87.50-108.00MHz 50KHz STEP	531-1602KHz 9KHz STEP (* 1)	—	—	24H
[A/C version]	87.50-108.00MHz 100KHz STEP	—	530-1710KHz 10KHz STEP	—	12H
UL CSA [A/C version]	87.50-108.00MHz 100KHz STEP	—	530-1710KHz 10KHz STEP	—	12H
JAPAN [J version]	76.00-108.00MHz 50KHz STEP	—	530-1710KHz 10KHz STEP	—	12H
KOREA [K version]	87.50-108.00MHz 50KHz STEP	—	531-1602KHz 9KHz STEP (* 1)	—	12H

(* 1) Auto scan is a multiple of 9.

(* 2) If the BAND button is held down for 5 seconds, the step changes as follows.

[U/T, SAA version]

FM 50KHz → FM 100KHz → INITIAL DISPLAY

MW 9KHz → MW 10KHz → MW 530KHz

Memory in advance of its change should be cleared.

50KHz/9KHz step at the initial.

The step, if more than 100KHz/10KHz, returns to 50KHz/9KHz when μ-com is reset.

5. FM AUTO/MONO OPERATION TABLE

Port / Mode	Tuned Input	Stereo Input	FM Auto & Mono Control
FM AUTO	L	L	H
FM AUTO	L	H	H
FM AUTO	H	L	L
FM AUTO	H	H	L
FM MONO	—	—	L

6. TUNER MUTE OPERATION TABLE

Port / Mode	Tuned Input	Stereo Input	Tuner Mute Output
FM AUTO	L	L	L
FM AUTO	L	H	L
FM AUTO	H	L	H
FM AUTO	H	H	H
FM MONO	—	—	L

7. TEST FREQUENCY (1)

[E/V/B version] 50KHz/9KHz

CH	BAND	FM MODE	FREQUENCY
1	FM	AUTO	98.00MHz
2	FM	MONO	88.00MHz
3	FM	MONO	108.00MHz
4	LW	MONO	162KHz
5	LW	MONO	288KHz
6	LW	MONO	198KHz
7	MW	MONO	1404KHz
8	MW	MONO	603KHz
9	MW	MONO	999KHz
10	LW	MONO	288KHz
11	FM	MONO	87.50MHz
12	FM	MONO	90.00MHz
13	FM	MONO	106.00MHz
14	MW	MONO	531KHz
15	MW	MONO	1602KHz
16	LW	MONO	144KHz
17	FM	AUTO	87.50MHz
18	FM	AUTO	87.50MHz
19	FM	AUTO	87.50MHz
20	FM	AUTO	87.50MHz
21	FM	AUTO	87.50MHz
22	FM	AUTO	87.50MHz
23	FM	AUTO	87.50MHz
24	FM	AUTO	87.50MHz
25	FM	AUTO	87.50MHz
26	FM	AUTO	87.50MHz
27	FM	AUTO	87.50MHz
28	FM	AUTO	87.50MHz
29	FM	AUTO	87.50MHz
30	FM	AUTO	87.50MHz

[U version] 100KHz/10KHz

CH	BAND	FM MODE	FREQUENCY
1	AM	MONO	1710MHz
2	FM	AUTO	87.50MHz
3	FM	AUTO	87.50MHz
4	FM	AUTO	87.50MHz
5	FM	AUTO	87.50MHz
6	FM	AUTO	87.50MHz
7	FM	AUTO	87.50MHz
8	FM	AUTO	87.50MHz
9	FM	AUTO	87.50MHz
10	FM	AUTO	87.50MHz
11	FM	AUTO	87.50MHz
12	FM	AUTO	87.50MHz
13	FM	AUTO	87.50MHz
14	FM	AUTO	87.50MHz
15	FM	AUTO	87.50MHz
16	FM	AUTO	87.50MHz
17	FM	AUTO	87.50MHz
18	FM	AUTO	87.50MHz
19	FM	AUTO	87.50MHz
20	FM	AUTO	87.50MHz
21	FM	AUTO	87.50MHz
22	FM	AUTO	87.50MHz
23	FM	AUTO	87.50MHz
24	FM	AUTO	87.50MHz
25	FM	AUTO	87.50MHz
26	FM	AUTO	87.50MHz
27	FM	AUTO	87.50MHz
28	FM	AUTO	87.50MHz
29	FM	AUTO	87.50MHz
30	FM	AUTO	87.50MHz

7. TEST FREQUENCY (2)

[A/C version] 100KHz/10KHz

CH	BAND	FM MODE	FREQUENCY
1	FM	AUTO	98.00MHz
2	FM	MONO	88.00MHz
3	FM	MONO	108.00MHz
4	AM	MONO	1400KHz
5	AM	MONO	600KHz
6	AM	MONO	1000KHz
7	FM	MONO	87.50MHz
8	FM	MONO	90.00MHz
9	FM	MONO	106.00MHz
10	AM	MONO	530KHz
11	AM	MONO	1710KHz
12	FM	AUTO	87.50MHz
13	FM	AUTO	87.50MHz
14	FM	AUTO	87.50MHz
15	FM	AUTO	87.50MHz
16	FM	AUTO	87.50MHz
17	FM	AUTO	87.50MHz
18	FM	AUTO	87.50MHz
19	FM	AUTO	87.50MHz
20	FM	AUTO	87.50MHz
21	FM	AUTO	87.50MHz
22	FM	AUTO	87.50MHz
23	FM	AUTO	87.50MHz
24	FM	AUTO	87.50MHz
25	FM	AUTO	87.50MHz
26	FM	AUTO	87.50MHz
27	FM	AUTO	87.50MHz
28	FM	AUTO	87.50MHz
29	FM	AUTO	87.50MHz
30	FM	AUTO	87.50MHz

[J version] 50KHz/9KHz

CH	BAND	FM MODE	FREQUENCY
1	FM	AUTO	98.00MHz
2	FM	MONO	78.00MHz
3	FM	MONO	88.00MHz
4	AM	MONO	1404KHz
5	AM	MONO	603KHz
6	AM	MONO	999KHz
7	FM	MONO	76.00MHz
8	FM	MONO	90.00MHz
9	FM	MONO	108.00MHz
10	AM	MONO	531KHz
11	AM	MONO	1602KHz
12	FM	MONO	88.00MHz
13	FM	MONO	95.75MHz
14	FM	AUTO	76.00MHz
15	FM	AUTO	76.00MHz
16	FM	AUTO	76.00MHz
17	FM	AUTO	76.00MHz
18	FM	AUTO	76.00MHz
19	FM	AUTO	76.00MHz
20	FM	AUTO	76.00MHz
21	FM	AUTO	76.00MHz
22	FM	AUTO	76.00MHz
23	FM	AUTO	76.00MHz
24	FM	AUTO	76.00MHz
25	FM	AUTO	76.00MHz
26	FM	AUTO	76.00MHz
27	FM	AUTO	76.00MHz
28	FM	AUTO	76.00MHz
29	FM	AUTO	76.00MHz
30	FM	AUTO	76.00MHz

7. TEST FREQUENCY (3)

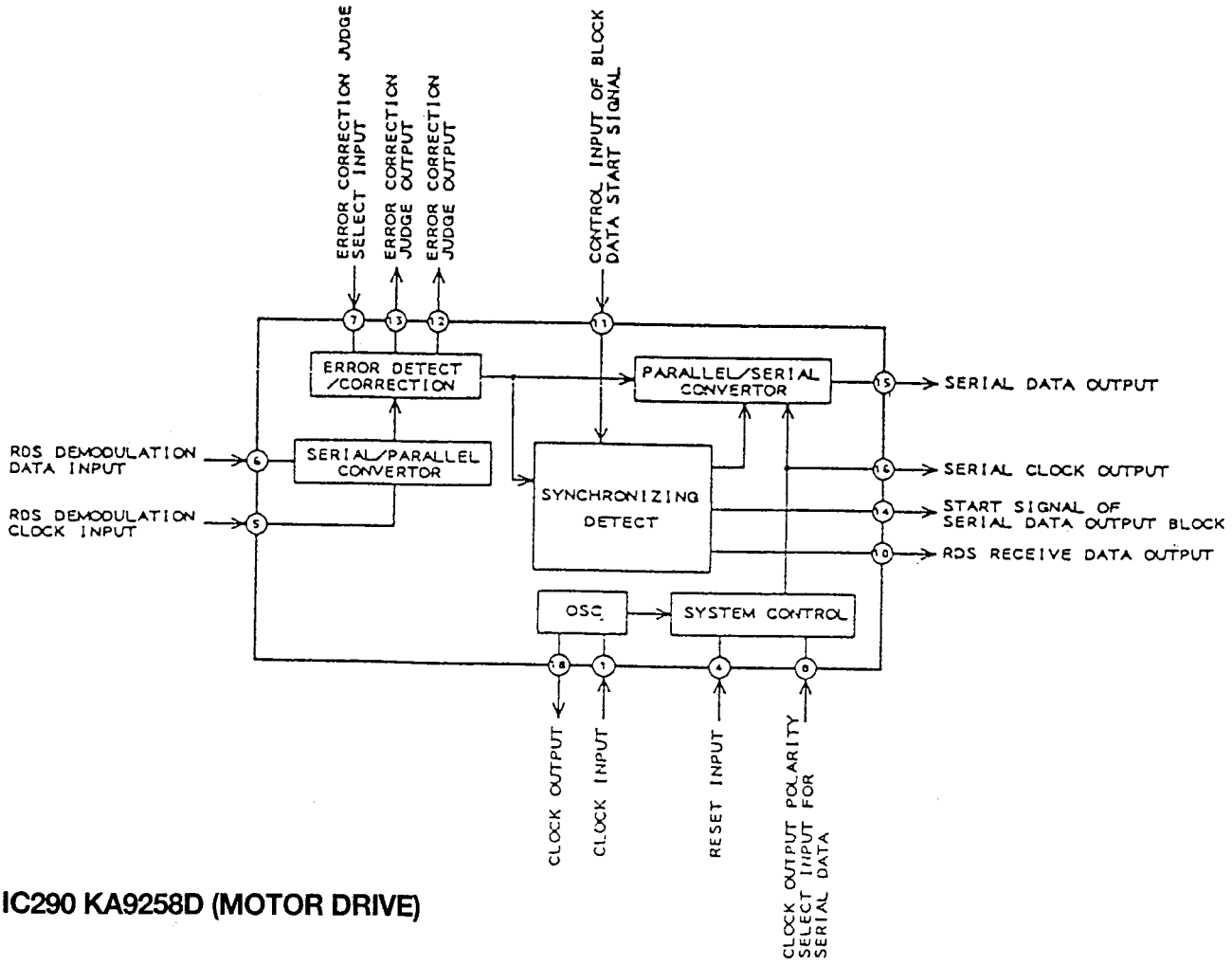
[S/U/Y6/Y7 version]

CH	BAND	FM MODE	FREQUENCY
1	FM	AUTO	98.00MHz
2	FM	MONO	88.00MHz
3	FM	MONO	108.00MHz
4	MW	MONO	1404KHz
5	MW	MONO	603KHz
6	MW	MONO	999KHz
7	FM	MONO	87.50MHz
8	FM	MONO	90.00MHz
9	FM	MONO	106.00MHz
10	MW	MONO	531KHz
11	MW	MONO	1602KHz
12	FM	AUTO	87.50MHz
13	FM	AUTO	87.50MHz
14	FM	AUTO	87.50MHz
15	FM	AUTO	87.50MHz
16	FM	AUTO	87.50MHz
17	FM	AUTO	87.50MHz
18	FM	AUTO	87.50MHz
19	FM	AUTO	87.50MHz
20	FM	AUTO	87.50MHz
21	FM	AUTO	87.50MHz
22	FM	AUTO	87.50MHz
23	FM	AUTO	87.50MHz
24	FM	AUTO	87.50MHz
25	FM	AUTO	87.50MHz
26	FM	AUTO	87.50MHz
27	FM	AUTO	87.50MHz
28	FM	AUTO	87.50MHz
29	FM	AUTO	87.50MHz
30	FM	AUTO	87.50MHz

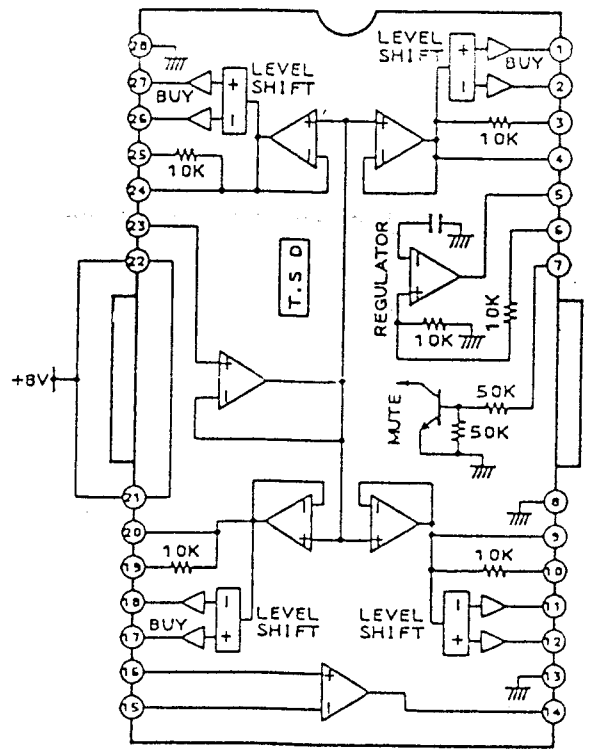
[K version] **50KHz/9KHz**

CH	BAND	FM MODE	FREQUENCY
1	FM	MONO	87.50MHz
2	FM	MONO	90.00MHz
3	FM	MONO	98.00MHz
4	FM	MONO	106.00KHz
5	FM	MONO	108.00KHz
6	AM	MONO	531KHz
7	AM	MONO	603MHz
8	AM	MONO	999MHz
9	AM	MONO	1404KHz
10	AM	MONO	1602KHz
11	FM	AUTO	87.50MHz
12	FM	AUTO	87.50MHz
13	FM	AUTO	87.50MHz
14	FM	AUTO	87.50MHz
15	FM	AUTO	87.50MHz
16	FM	AUTO	87.50MHz
17	FM	AUTO	87.50MHz
18	FM	AUTO	87.50MHz
19	FM	AUTO	87.50MHz
20	FM	AUTO	87.50MHz
21	FM	AUTO	87.50MHz
22	FM	AUTO	87.50MHz
23	FM	AUTO	87.50MHz
24	FM	AUTO	87.50MHz
25	FM	AUTO	87.50MHz
26	FM	AUTO	87.50MHz
27	FM	AUTO	87.50MHz
28	FM	AUTO	87.50MHz
29	FM	AUTO	87.50MHz
30	FM	AUTO	87.50MHz

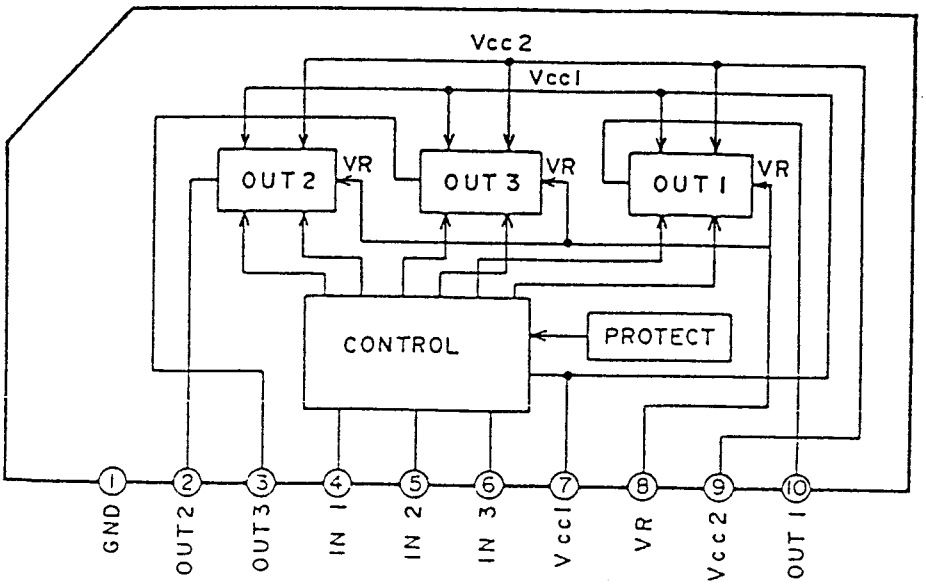
8. LC7073R (RDS DATA PROCESS)



9. IC290 KA9258D (MOTOR DRIVE)



10. BA6247 (REVERSIBLE MOTOR DRIVE)



INPUT			OUTPUT		
IN1	IN2	IN3	OUT1	OUT2	OUT3
L	L	L	L	L	L
		H			
H	L	L	H	L	OPEN
H	L	H	L	H	OPEN
L	H	L	H	OPEN	L
L	H	H	L	OPEN	H
H	H	L	L	L	L
		H			

11. SAA6579T (RDS DEMODULATOR)

Pin No.	Port Name	I/O	Function
1	QUAL	O	QUALITY INDICATION OUTPUT
2	RDDA	O	RDS DATA OUTPUT
3	VREF	—	REFERENCE VOLTAGE OUTPUT
4	MUX	I	MULTIPLEX SIGNAL INPUT
5	VDD	—	+5V SUPPLY VOLTAGE FOR ANALOG PART
6	VSS	—	GND FOR ANALOG PART
7	CIN	I	SUBCARRIER INPUT TO COMPARATOR
8	SCOUT	O	SUBCARRIER OUTPUT OF RECONSTRUCTION FILTER
9	MODE	I	OSCILLATOR MODE/TEST CONTROL INPUT
10	TEST	I	TEST ENABLE INPUT
11	VSS	—	GND FOR DIGITAL PART
12	VDD	—	+5V SUPPLY VOLTAGE FOR DIGITAL PART
13	OSC1	I	OSCILLATOR INPUT
14	OSC0	O	OSCILLATOR OUTPUT
15	T57	O	57KHz CLOCK SIGNAL OUTPUT
16	RDCL	O	RDS CLOCK OUTPUT

ABBREVIATIONS

TUNER

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
AFC	Auto Frequency Control	MEMO	MEMOry
AGC	Auto Gain Control	MI-COM	MIcro-COMputer
ALC	Auto Level Control	MIN	MINimum
AM	Amplitude Modulation	MIX	MIXing
AMP	AMPlifier	MPX	MultipleX
ANT	ANTenna	MW	Medium Wave(frequency)
BATT	BATTery	NC	No Connection
BLK	BLocK	NFB	Negative Feed Back
BUFF	BUFFer	OSC	OSCillator
COMP	COMParator	PCB	Printed Circuit Board
DET	DETect(DETector)	PLL	Phase Locked Loop
FLD	FLuorescent Display	Q.D	Quadrature Detector
FM	Frequency Modulation	Rch	Right channel
FREQ	FREQuency	REF	REFerence
GND	GrouND	REG	REGulator
H	High	RF	Radio Frequency
HPF	High Pass Filter	SEG	SEGment
IF	Intermediate Frequency	SELE	SELEctor
IHF	Institut of High Fidelity	SENS	SENSitivity
IND	INDicator	SIG	SIGnal
I/O	In/Out	S/N	Signal to Noise Ratio
JW	Jumper Wire	SSG	Standard Signal Generator
L	Low	STD	STanDard
LCD	Liquid Crystal Display	SW	SWitch : Short Wave(frequency)
Lch	Left channel	THD	Total Harmonic Distortion
LED	Light Emitting Diode	TP	Test Point
LPF	Low Pass Filter	VCO	Voltage Controlled Oscillator
LW	Long Wave(Frequency)	VR	Variable Resistor
		X'TAL	Crystal

COMPACT DISC

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
A-D	Analog to Digital (Converter)	Mb	Mega Bits
ADC	Analog to Digital (Converter)	MDA	Motor Drive Amplifier
BCD	Binary Code Decimal	MFM	Modified Frequency Modulation
BPI	Bits per Inch	MM	Mono-stable Multivibrator
CD	Compact Disc	M_2FM	Modified Modified Frequency Modulation
CIRC	Cross Interleaving & Reed Solomon Coding	MOD2	Modulo 2(Addition)
CLV	Constant Linear Velocity	MP	Microprocessor
CP	Clock Pulses	MSB	Most Significant Bit
CRCC	Cyclic Redundancy Check Codes	NA	Numerical Aperture
D Level	Decision Level	NRZ	Non Return to Zero
D-A	Digital to Analog (Converter)	NRZ-1	Non Return to Zero Inverted
DAC	Digital to Analog (Converter)	P	Parity Data
DAD	Digital Audio Disc	PAM	Pulse Amplitude Modulation
DEM	Dynamic Element Matching	PCM	Pulse Code Modulation
DPD	Differential Phase Detection	PD	Phase Detector
DSV	Digital Sum Value	PE	Phase Encode
EFM	Eight to fourteen Modulation	PLL	Phase Locked Loop
EX-OR	Exclusive OR	PNM	Pulse Number Modulation
FCI	Flux Changes per Inch	PPM	Pulse Phase Modulation
FIR	Finite Impulse Response	PWM	Pulse Width Modulation
FP	Front Pulse	Q	Parity Data
FPG	Front Pulse Gate	R, R_1, R_2, etc	Data for Right Channel
F	Frequency of Sampling	RAM	Random Access Memory
GF	Galois Field	RPG	Rear Pulse Gate
H & V (Parity)	Horizontal & Vertical	SCOOP	Self Coupled Optical Pick-up
IIR	Infinite Impulse Response	S & H	Sample & Hold
KB	Kilo Bits	S/N	Signal to Noise Ratio
L, L^1, L^2, etc.	Data for Left Channel	SSG	Standard Signal Generator
LPF	Low Pass Filter	SYSCON	SYStem CONtrol
LSB	Least Significant Bit		